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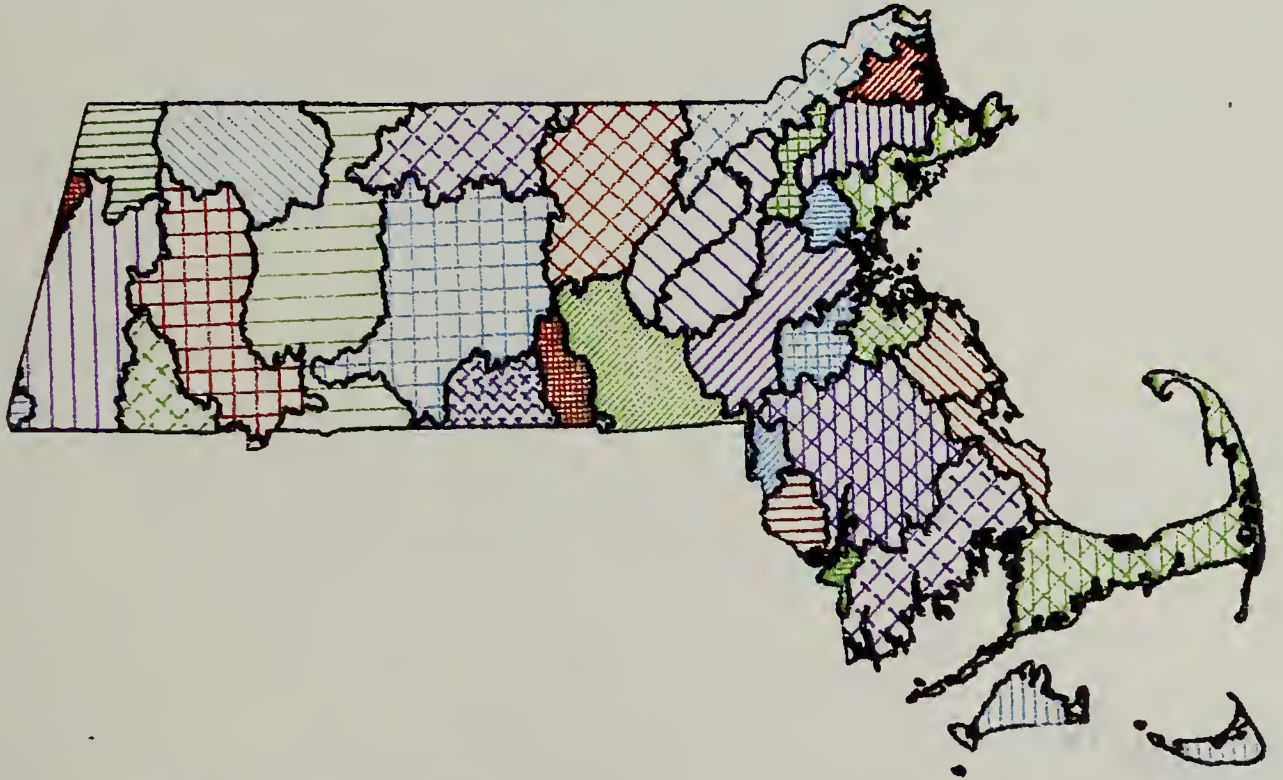
1988 ANNUAL REPORT



DEC 27 1991

MASSACHUSETTS

DEPARTMENT OF ENVIRONMENTAL QUALITY ENGINEERING

DIVISION OF WATER POLLUTION CONTROL

Executive Office of Environmental Affairs
John DeVillars, Secretary

Department of Environmental Quality Engineering
Daniel S. Greenbaum, Commissioner

Division of Water Pollution Control
Cornelius J. O'leary, Acting Director

DIVISION OF WATER POLLUTION CONTROL
ANNUAL REPORT
FISCAL YEAR 1988

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DIVISION OF WATER POLLUTION CONTROL

SUMMARY OF ACCOMPLISHMENTS

FY 88

DWPC SUMMARY OF ACCOMPLISHMENTS
FISCAL YEAR 1988

WASTEWATER TREATMENT CONSTRUCTION GRANTS PROGRAM

	(FY'88)
A. Step I Grants Awarded	1
State 90% funds in millions of dollars	$4.2m
B. Step II Grants Awarded	15
State 90% funds in millions of dollars	$3.4m
C. Construction Grants Awarded	9
EPA and State funds in millions of dollars	$229.2m

D. Developed the Infiltration Inflow (I/I) Reduction Program, providing $100 million in State funded grants to communities for the rehabilitation of sewerage collection and transmission facilities to reduce infiltration and inflow:

Number of Projects	57
Total in millions of dollars	$8.1m

E. Implemented Tier II, 70% State funded grants program. Program authorized awarding $20 million dollars annually thru FY'89 to municipalities for water pollution abatement projects

Number of Projects	30
Total in millions of dollars	$51.4m

F. Continued development of a state Revolving Loan Fund Program to ensure continued construction and rehabilitation of WWTPs during the transition from federal to state and local responsibility.

COLLECTOR SEWER GRANT PROGRAM

A. Number of Collector System Projects Grants Awarded		23
B. Number of Contracts Represented.		31
C. Dollar Value:	State Portion in millions of dollars.	26m
	Total Dollar Value in millions of dollars.	68m

REGULATORY PROGRAM		(FY'88)
A.	NPDES Permits Reviewed	88
B.	NPDES Permits Issued	81
C.	Groundwater Permits Drafted	80
D.	Groundwater Permits Issued	48
E.	Water Quality Certifications Issued	450
F.	Sewer Extension Permits Issued	566
G.	Notices of Non-Compliance Issued	91
H.	Administrative Orders Issued	69
I.	Penalty Assessments Issued	53
J.	Regulatory Cases Referred to AG	9
K.	Compliance Monitoring Samples	
	Major Permittees	111
	Minor Permittees	42
L.	Number of Toxic Waste Samples at Major Permittees	114
M.	Increased efforts to improve plant operation and maintenance through the centralized Technical Assistance Unit:	
	Number of Treatment Plants Assisted	64
N.	Number of Regional Office O&M Inspections:	
	Major Permittees	334
	Minor Permittees	183
O.	Number of plants demonstrating significant O&M improvements. (This is a long term goal)	9

WATER QUALITY MANAGEMENT PROGRAM

		(FY'88)
A.	Increased commitment to integrate toxic concern into permit review and Biological, Monitoring, and Research and Demontration projects.	
B.	Number of Major Water Quality Surveys Conducted.	10
C.	Number of Synoptic Water Quality Surveys Conducted.	18
D.	Number of Comprehensive Water Quality Management Reports Completed.	2
E.	Number of Model Calibrations for Waste Load Load Allocation Reviews.	3
F.	Number of Effluent Limit Calculations/Reviews for NPDES Permits.	42
G.	Number of Reviews of Wastewater Treatment Facilities Plans for Construction.	8
H.	305(B) Report, Highlighting Water Quality Improvements Resulting from Construction Grants Program.	1
I.	Stepped Up Monitoring Activities in Harbor Areas Number of Harbors Monitored	 11

CLEAN LAKES PROGRAM

A.	Implemented Regulations and Administrative Procedures for Ch. 628 Program.	
B.	Number of Ch. 628 Grants made to Communities. Dollar Value in millions of dollars	23 $3.25m
C.	Total Number of Ch. 628 On-going Grant Projects	124
D.	Number of Requests for grant Assistance for Funds Under Ch. 628.	56
E.	Managed Nuisance Aquatic Vegetation Control Program Projects.	7
F.	Number of Lake Restoration Projects Underway as per Section 314 Program.	8

	(FY'88)
RESEARCH & DEMONSTATION/BIOLOGY PROGRAM	
A. Number of R&D Contracts	9
B. Dollar value of contracts in millions of dollars	1.2m
C. Number of Microtoxicity tests conducted	91
WASTEWATER TREATMENT PLANT OPERATION CERTIFICATION PROGRAM	
A. Number of New Certifications Issued.	366
B. Total Number of Active Certified Operators	2730

MANAGEMENT ACCOUNTABILITY PROCESS

A. Completion of Finalized Program Plan Acceptable to EPA.

B. Completion of Grant Application for Federal Monies.

C. Completion of State Budget Requests.

D. Completion and Proper Submission of Quarterly Reports to OPPM, FY'87.

E. Competion of the Division Annual Report.

F. Completion of Referendum #4 Impact Report.

OVERALL ACCOMPLISHMENT OF ON-GOING WPC OPERATING PROGRAMS, FY'88

1. Percentage of Surveyed Stream Miles (1676 miles) meeting:

Full Support of designated use	51%
Partial Support of designated use	37%

2. Initiation of Major Programmatic Efforts into Nonconventional Pollutant Control Programs, e.g. TOXICS and GROUNDWATER

3. Initiated development of a state Revolving Loan Fund Program

MUNICIPAL FACILITIES BRANCH

The State/EPA Construction Grants Program provides financial assistance to municipalities and sewerage districts for water pollution abatement projects. The Construction expenditures in Massachsuetts since the Division's inception in 1967 nearly $2.4 billion.

The major event occuring during FY'88 was the Division's follow-up response to the enactment of the Federal Water Quality Act of 1987. This act covers fiscal years 1986-1994, encompassing $18 billion worth of Federal Construction Programs, of which Massachusetts' allotment is nearly $600 million over a nine-year period. These funds are authorized through a combination of Construction Grants, and a State Revolving Loan Program, which will increasingly shift from all grants in FY'87 to all loans by FY'91. As of the end of FY'94, the Loan Program will be totally phased-out.

Section 212 of the 1987 Federal WQA established a new Title VI Section, providing for a State-administered Revolving Funds Loan Program (SRF). These are capitalization grant agreements, lasting up to 20 years. States must provide a 20% match of Federal funds. These funds will be available through FY'94 on a diminishing scale, starting in 1992. As the available Federal dollars decline, a principal challenge to the State's construction program is weaning communities from the declining Federal sources to other available state and local funding options.

Ch. 786, Massachusetts Acts of 1985, which authorized $357 million in the Construction Grants Program for pollution abatement projects. The major portion of this authorization was earmarked for the Federal/State Construction Grants Program, with the State assuming the larger 55% share, and the Federal share set at 35%. The Act also provided $80 million through 1989 for 70% State only grants to municipalities for projects not likely to receive Federal assistance, or for correction of combined sewer overflows.

INFILTRATION/INFLOW REDUCTION PROGRAM

The Infiltration/Inflow (I/I) Reduction Program provides $100 million in state funds for grants to cities and towns for the rehabilitation of sewerage collection and transmission facilities to reduce infiltration and inflow. Implementation of the I/I program will directly impact public health and environmental, social, political, and economic interest by:

reducing the incidence of basement flooding and sewer backup; reducing overflows of sewage into the ground or into local water courses utilized for water supplies, fishing or swimming; increasing treatment efficiencies at wastewater treatment plants; expanding homeowner, commercial and industrial use of the sewer system by increasing the capacity of the sewer lines for wastewater flows; lessening the frequency of replacement or enlargement of sewage interceptors, pumping stations and treatment plants and diminishing regulatory prohibitions on the addition of new wastewater flows to flows to the local sewer systems.

The Division provides 90% state grants to cities, towns and sewerage districts for the planning, design and construction phases of the I/I program. The Infiltration/Inflow Reduction Program provides financial resources for the construction phases of I/I work to communities which are generally not funded under the Federal 201 Construction Grants.

STATE-ONLY 70% GRANT PROGRAM

Chapter 786 of the Acts of 1985 established a new non-Federal, State-only grant program that earmarked $80 million over a four year period to provide 70% State-only grants to municipalities for important water pollution abatement projects. This program is targeted for correction of CSO's and for projects that most likely will not receive Federal assistance. It is anticipated that approximately $115 million in total construction costs could be funded over the next four years. A 30% local share would be required. The State funding provided $20 million annually for FY'86 through FY'89, representing $80 million in total.

COLLECTION SYSTEMS GRANT PROGRAM

The program is administered by DEQE, DWPC and is authorized by MGL c. 21 Section 30A as amended by Section 4 of Chapter 557 of the Acts of 1979; Chapter 286 of the Acts of 1982 and most recently amended by Chapter 786 of the Acts of 1985. The Director of DWPC is authorized to make grants to public entities for the cost of constructing collection systems, subject to legislative appropriation.

As originally enacted, grants were made to public entities in an amount not to exceed 40% of eligible construction costs or $1.0 million whichever is less. Excluded from this $1.0 million limitation are grandfathered (14) projects. The original authorization provided $12.0 million for grants from FY'80 through '84. Of the $12.0 million, 25% (3.0 million) was set aside for the award of grants to those projects which will provide the greatest economic benefit to the Commonwealth (Economic Benefit Projects).

Currently, funding for the program is extended through FY'89. The annual appropriation from FY'86 thru FY'89 is $25 million. Generally grants are made to public entities in an amount of 50% of eligible construction costs not to exceed $3.0 million and the Economic Benefit set aside is set at $4.0 million per year. All unexpended funds at the end of a fiscal year are carried over and made available for collection systems projects in the subsequent fiscal year.

REGULATORY BRANCH

The Regulatory Branch ensurers effective pollution abatement by administering the Discharge Permit and Groundwater Protection Programs; encouraging proper operation and maintenance at wastewater treatment plants; providing technical assistance and training to treatment plant operators; monitoring compliance with permits, policies, and regulations; conducting on-site inspections; and executing enforcement actions to correct violations of designated permit limits and regulations.

Surface Water Permits

During FY'88, municipal and industrial surface water permits, specifying pollutant discharge limitations, continued to be jointly issued with EPA through the NPDES program. During the issuance and reissuance of NPDES permits, technelogical advancements in the control of toxic and hazardous pollutants continued to be deployed with an emphasis on source reduction, toxicity testing, and pretreatment. The NPDES permits are screened for all organic and inorganic chemicals reported in permit applications, assessed for toxicity limits and subjected to more stringent treatment requirements. In addition, state-only permits are issued for non-contact cooling water permits under one million gallons per day.

Groundwater Permits

The Groundwater Protection Unit coordinates discharge permitting with groundwater classification, Title 5, subsurface disposal of septage, residual disposal, and Underground Injection Control. Permits are issued for discharges of liquid effluent to the land surface, subsurface leaching facilities, injection wells, and percolation pits, ponds and lagoons.

In FY'88 a key activity of the groundwater section was continuation of the statewide classification of groundwater as potable (Class I), potentially potable, saline (Class II), and non-potable (Class III), in accordance with 314 CMR 6.00. Classification efforts include reviews for class designation petitions, evaluations, public hearings, and recommendations for amendments to existing regulations.

Indirect Permits and Pretreatment

In conformance with the requirements of 314 CMR 7.00, the indirect permitting and pretreatment section issues permits for industrial and domestic wastewater discharges to publicly owned treatment works (POTWs) and for extensions of sewer systems. Tasks associated with these activities include the review of engineering plans, infiltration/inflow reports and operation and maintenance manuals for industrial and domestic wastewater treatment systems; meeting with engineering consultants, and other public and private entities; and the preparation of enforcement cases.

Industrial facilities which discharge toxic wastes or usually high concentrations of conventional wastes to POTWs must provide pretreatment prior to entering the municipal system. Currently 50 communities are required by EPA General Pretreatment Regulations and Massachusetts Regulations (314 CMR 12.00) to implement pretreatment programs to regulate these industries.

Technical Assistance/Training

Technical Assistance efforts will focus on locating problem plants and documenting assistance provided to them. Documentation will include an assessment of the problem, actions taken, recommendations made, and the results of corrective measures employed. Responsibilities of the section are to perform diagnostic evaluations; on-site assistance to improve performances operation, maintenance, and staffing evaluations; follow up site inspections to determine the efficiency of the plant performance after assistance efforts, and in general to increase the number of facilities in compliance with their NPDES permits. The section will also be responsible for the review of operation and maintenance manuals as related to 314 CMR 12.00. This regulation established procedures for proper operation of treatment works, certification of staffing, sewer system extensions and connections, pretreatment, sampling, record keeping and safety. Additional tasks of this section include coordinating Departmental review and comments on contract operations bids, proposals, and agreements; cooperating with the Board of Certification and regional offices to evaluate treatment plant personnel and operation; ensuring proper certified staff levels; and assigning plant grade ratings.

Wastewater Residual Management

In the past, wastewater residual management in the Commonwealth has been an incomplete and well traveled program being the responsibility of several Divisions. Until recently primary administrative responsiblity of the program has been with the Division of Solid and Hazardous Waste (DSHW).

Since early 1985, the Divisions of Water Pollution Control and Solid and Hazardous waste have been meeting to discuss increasing environmental concerns Related to the dispositions of sludge and other residuals. A reevaluation of sludge management resulted in an agreement between the Division Directors, stating that the lead responsibilities and staffing resources for over-seeing sludge disposal should be reassigned to the Division of Water Pollution Control.

Initiatives which have been undertaken to date include development of land application regulations (310 CMR 32.00); review and approval of sludge suitability for land application, review and issuance of land application certificates, and review of plans for sludge only landfills.

Regions

Organizationally, regional staff are an extension of the Regulatory Branch assigned to implementing and enforcing Water Pollution Control Regulations. Specific responsibilities include reviewing plans and specifications for new wastewater treatment facilities; reviewing permits for surface water and groundwater discharges and sewer connections; reviewing wastewater treatment plant monitoring reports to ensure compliance with approved plans and permits; conducting WWTP operation and maintenance inspections; performing field investigations in response to pollution complaints; providing on site technical assistance to WWTP operators; gathering evidence and preparing enforcement actions; reviewing Title 5 plans and specifications; and approving/denying Title 5 variances.

Technical Services Branch

The main functions of the Division's Technical Services Branch (TBS) are to monitor, evaluate and report on the quality of the Commonwealth's water. This includes rivers, lakes, coastal and groundwaters as well as wastewater discharges. The water quality monitoring efforts include biological assessments of instream biota and an expanding evaluation of toxicity in wastewater discharges. These activities complement the discharge monitoring program which test for a variety of toxic substances, in addition to conventional pollutants. The latest component of this assessment includes testing of edible fish tissue for selected toxic substances.

The TSB provides support to and review for the municipal facilities and regulatory branches on wastewater treatment projects and permits for both surface and groundwater discharges. Coastal monitoring has received additional emphasis through the creation of a marine group within the Water Quality section. The group is responsible for conducting a comprehensive Buzzards Bay study, as well as investigating water quality conditions in several coastal locations, including Boston Harbor. TSB is charged with determining the degree of treatment necessary for wastewater discharges to meet water quality standards. This information, as well as that relating to other water resources and quality, is incorporated into River Basin plans which employ watersheds as the planning unit, and which outline the overall water pollution control strategy for the Commonwealth.

Another major water quality effort of the TSB is the Clean Lakes Program which, in addition to monitoring and evaluating the water quality of lakes, administers grants to cities and towns for a cooperative program of lake preservation, restoration, and maintenance. Duties include analyzing technical and legal information on lakes and their watersheds, ranking projects for funding, writing complex technical scopes of work, writing and reviewing legal documents, accounting for project spending, reviewing complex technical reports, and overseeing project implementation.

In accordance with the 1987 Amendments to the Federal Clean Water Act, basic information on nonpoint sources has been assembled as part of the process to decide whether Massachusetts will pursue the control program outlined by Congress. Currently, the Massachusetts Clean Lakes Program forms a major portion of the Commonwealth's Non-point Source Control Program. These efforts will continue over the next five years.

HIGHLIGHTS OF NEW PROGRAM EMPHASIS IN WPC

In response to the ever changing demands and stresses on the environmental resources under the jurisdiction of DEQE, the Department has developed several new programs over the past decade. These programs are an expansion of the "base" programs (Construction Grants, Water Quality Standards, Permitting, etc.) which set forth the foundations of the environmental programs when initiated in the 1960's and coordinated into one major agency with the establishment of DEQE in 1975. The "new" programs are extensions of work that may have been begun several years prior to those which had not been a priority due to limitations in finances or applicable technology. At the same time, the Federal Clean Water Act of 1987 emphasized that states should expand the focus of programs into pertinent non-construction grants concerns affecting water quality. The expansion of program areas has been necessary in view of the environmental problems of the state, but also has brought resource demands and has (and will continue to do so in the future) necessitated the development of an overall strategy to coordinate and prioritize the implementation (and staffing, etc.) of these programs. The following discussion will briefly highlight the major goals and objectives of these new programs.

Non-Point Sources: The significant reduction of the pollutant loadings from point source discharges (municipal wastewater treatment facilities, industrial treatment facilities) which has been accomplished over the past two decades has greatly improved the quality of the surface waters of Massachusetts. There are wastewater treatment plant upgradings which are necessary to futher reduce this loading (particularly coastal discharges from primary treatment systems); however, this progress has accentuated the impact and dominance of pollutants which enter waterbodies from diffuse sources (e.g. stormwater runoff, agricultural runoff). In response to these conditions, DEQE has recently established a Non-Point Source Program. This program is being financed in part from a grant from the U.S. EPA and may be supplemented by the passage of a state NPS Program which is currently before the Massachusetts Legislature. DEQE has completed an NPS Assessment Report as part of the 305(b) requirements of U.S. EPA. DEQE is currently planning an assessment strategy to implement a five year monitoring program designed to establish and update the data base necessary to determine the state-wide impacts from non-point source pollutant loadings. In addition, DEQE is establishing management implementation strategies designed to create "real-world" solutions to NPS problems.

Marine Water Quality Management: The environmental pressures placed upon the marine resources of Massachusetts have been very significant and widespread. These problems have received a great deal of notoriety in the form of Boston Harbor; however, the problems of Boston Harbor are experienced in several other estuaries in the state. Construction of improved wastewater treatment facilities proceeded on a much faster track for discharges to inland, fresh waters in Massachusetts than for coastal discharges. Many large volume discharges to the marine environment are from poorly functioning primary treatment plants which are in various planning and construction stages to upgrade the level of treatment. This process will take at least another decade to complete.

In response to the environmental degradation of the coastal resources of the state, DEQE has established a Marine Water Quality Management Section which is designed to provide technical expertise in monitoring assessing, planning, and reviewing of construction grants related activities in the marine environment. The marine program is evolving in both scope of work and in staffing. The need is great and the program will greatly increase in the upcoming years. DEQE is devoting significant resources to the construction grant program ("base" program) in the construction of upgraded treatment facilities and the the control of combined sewer overflows. The entire marine program is a classic example of how "base" programs interact with "new" programs and that program direction evolves in response to their significant issues faced by DEQE.

Biomonitoring/Toxicity Evaluation and Control: Recent expansion of biological based programs (e.g. fish toxics monitoring and coastal surveys) and DEQE agency wide initiatives (e.g. Question 4) have led to and increasing demand for biomonitoring and toxicity programs. Biomonitoring activities are often used as a screening program to determine the overall impact of toxic discharges upon resident biota and often such studies have a direct relationship with public health impacts such as contaminant bioaccumulation.

DEQE programs include:

Microbiology-This program addresses the distribution and proliferation of phytoplankton in watersheds; studies various bacteriological indicators which can be used to distinguish types of pollutant contaminants; this technique is particularly important in marine environments where contaminated shellfish areas severly limit the use of available resources.

Macroinvertebrates-This program has been a mainstay of the field biomonitoring program over the past 15 years. The program utilizes the Macroinvertebrate Rapid Bioassessment method to determine the impact of waste discharges on the biological communities within a river system. The program is a valuable assessment methodology and can often indicate the need for additional controls or can help in the identification of which pollutant component is causing problems. In addition, macroinvertebrate collections for tissue contaminants as a possible link in the food web between sediment and water column and finfish for biomagnification of contaminants such as PCB and heavy metals.

Finfish-This is a new and highly visable program which collects and analyzes edible fish tissue for contaminant levels and provides a link to public health risks associated with fish consumption. Predictably, the demands placed upon this program will significantly increase in the upcoming years.

Toxicity Evaluation-As more and more NPDES discharge permits are issued with toxicity monitoring and maximum allowable toxic levels, DEQE has been slowly developing its capacity to undertake a toxicity monitoring program and initiate and enforcement strategy. This program has increased the regulatory functions of DEQE to control the toxic contaminants discharged to the waters of the Commonwealth. The toxicity control program needs to be significantly increased to respond to the demands of the 1987 Clean Waters Act and more importantly to develop the capability to properly use this program in the assessment of water quality conditions and the health of the biological communities across the state.

Clean Lakes Program: DEQE began its lakes program in the mid-1970's through a very modest field program. DEQE recognized the value and importance (and also the associated degadation) of lakes and ponds for public recreation and enjoyment. To deal with these vital resources, DEQE established the Massachusetts Clean Lakes Program for the purpose of restoring, preserving, or maintaining the vast array of publicly owned lakes and ponds in the state.

Authority for the program is afforded through Chapter 628 of the Acts of 1981, Chapter 286 of the Acts of 1982, and Chapter 722 of the Acts of 1969. The goals of the program are:

1. To diagnose degraded lakes and ponds and implement, on a priority basis, long term restoration solutions which must be feasible, cost-effective, and environmentally sound;
2. To diagnose lakes and ponds and implement, on a priority basis, methods for the long term preservation of their water quality;
3. To provide short-term remedial actions, on a priority basis, that relieve severe problems of nuisance aquatic vegetation and help maintain conditions suitable for public recreation.

Currently, the Division of Water Pollution Control (DWPC) is authorized to expend $4 million annually. Funding assistance is provided to communities across the state through matching grants (30% local match required for diagnostic/feasibility studies; 25% local match for restoration projects or nuisance control programs). DWPC establishes and annual project priority list to allocate the Program's fiscal resources. The development of the priority system and the schedule for the program are outlined in the document "Clean Lakes Program Guidelines" which is published annually be DWPC. In 1988, the Program staff of 9 people is handling a total of 130 active projects.

Groundwater-DEQE has responded to state-wide groundwater contamination problems by establishing a groundwater discharge permitting system for all discharges in excess of 15,000 gallons per day. The discharges are required to treat the wastewater to levels equivalent to the State's drinking water regulations. In addition, DEQE has established a hierarchial groundwater classification system which affords maximum protection to groundwaters. DEQE has established an aquifer protection program which supplies communities with funds to purchase lands within the overlying recharge areas to restrict land usage and sub-surface water supply contamination.

THE MASSACHUSETTS STATE CLEAN WATER STRATEGY

The Water Quality Act of 1987 (WQA) offers a special opportunity for regulatory agencies, the regulated community, and the public to implement the ambitious new initiatives in concert with ongoing core Clean Water Act (CWA) programs. States have been actively involved in water quality management planning since before the 1972 CWA, and under the amendments, need to address important new responsibilities in the areas of surface water toxics, non-point source pollution, clean lakes, and estuaries. In addition, wetlands and groundwater represent very important resources that merit protective efforts. Hence thereis both a compelling need an excellent opportunity for States to be creatively responsive in fulfilling their statutory responsibilities.

The Environmental Protection Agency (EPA) is actively encouraging states to meet the goals and requirements of the WQA to the fullest extent possible, and to do so in an open, consultative framework using the latest techniques of problem assessment and management. State Clean Water Strategies (SCWS) provide states with an opportunity to satisfy their WQA requirements through an open and integrated three stage process of waterbody/resource assessment, water resource targeting, and strategic management planning.

There are three themes that recur throughout the EPA guidance on states carrying out the SCWS process. The first is the necessity to establish--and keep in the forefront--long-range, multi-year water quality objectives. The second is the importance of establishing early, effective involvement of public interest groups, elected officials, the media and others who may be interested and able to assist in the process. The third is "targeting", which is the process of ordering and adjusting priorities to ensure that available resources and efforts are applied to programs that will achieve the greatest water quality benefits.

Development of the State Clean Water Strategy consists of three (3) stages: (1) Water Quality Assessments; (2) Water Resource Targeting; (3) State Management Plans (next 4-5 years).

(1) Assessment involves identifying impaired waters. The objective of this step are to:
(1) Identify impaired waterbodies to use as the basis for pollution prevention and control actions; (2) Identify threatened waterbodies in need of protection; (3) Identify gaps in information on water quality to use as the basis for determining where to focus on-going and future data collection efforts. This should combine efforts under WQA requirements for traditional pollutants, non-point sources, clean lakes, estuary programs, and water toxics. The advantages of combining these assessments are to help states identify geographical problems and crossmedia "hot spots"; make data gaps more apparent; encourage non-traditional, multi-agency coordination and cooperation; and form the basis for comprehensive pollution control efforts.

(2) Water Resource Targeting is the heart of the SCWS process and involves identifying the sequence and ranking for protecting resources. The objective of the ranking and targeting process is to foster a balanced approach that results in the targeting of waterbodies that reflects an evaluation of relative value and benefit.

Water resource-based targeting is an effort that may be carried out as follows:

1. Group waterbodies based on the most serious problems: While this is not an exact science, there are quantitative and surrogate indicators of use and/or use impairment that the state can use to make meaningful and defensible groupings of waterbodies in something as simple as high/medium/low categories; and

2. Select areas for immediate control action and identify the most important areas for further study: This involves looking at various combinations of short-and long-term actions, controls, and management plans that offer the greatest potential for achieving environmental benefits and meeting overall water programs goals.

(3) State Management Plans-At the end of the first two steps, the state should have a sense of strategic direction. The last step involves converting these concepts into a management plan to guide its actions over a multi-year period. This plan should identify an approach, set out a general schedule for accomplishing the overall mission (including some broad interim milestones for accomplishment), and explain how resources and efforts will be directed to protecting and/or restoring aquatic resources and habitat. In short, a management plan or a set of interrelated action plans provides the connection between the strategic direction and the state's annual work plans for carryout the work over a muti-year period.

The management plan will address problems through a sequence of activities and control efforts, and will describe how the state plans to address relative priority problems in the appropriate order. Since the SCWS is multi-year, it will discuss a proposed schedule in general terms, set out a challenging but realistic timetable, and establish some interim milestones for accomplishment.

LEGISLATION

The following legislation was enacted into law during the period July 1, 1987 through June 30, 1988.

Acts of 1987

Chapter 195 - An Act requiring certain persons to provide certain information and records of hazardous material and oil upon request to the Department of Environmental Quality Engineering.

Chapter 199 - An Act making appropriations for the fiscal year nineteen hundred and eighty eight for the maintenance of the Departments, Boards, Commissions, Institutions and certain activities of the Commonwealth for interest, sinking fund and serial bond requirements and for certain permanent improvements.

Chapter 214 - An Act relative to the Springfield Regional Wastewater Treatment Facility.

Chapter 216 - An Act establishing a Department of Public Works in the Town of Wilbraham.

Chapter 217 - An Act authorizing the Town of Scituate to use a certain parcel of recreational land for water treatment purposes.

Chapter 220 - An Act increasing the penalties for selling of contaminated shellfish.

Chapter 221 - An Act establishing the Beverly Harbor Management Authority.

Chapter 225 - An Act making appropriations to fund certain collective bargaining costs.

Chapter 273 - An Act providing for certain creditable service for certain employees in the public retirement system.

Chapter 280 - An Act authorizing the Town of Kingston to convey a certain parcel of land.

Chapter 303 - An Act making appropriations for the fiscal year ending June thirtieth, nineteen hundred and eighty seven to provide for supplementing certain existing appropriations and for certain other activities and projects.

Chapter 304 - An Act providing funding for the discovery and clean-up of hazardous waste sites in the Commonwealth.

Chapter 307 - An Act providing for the improvement of the Clinton Wastewater Treatment Plant.

Chapter 342 - An Act providing for coordination and assistance for certain economic development activities of the Commonwealth.

Chapter 351 - An Act relative to the terms of certain bonds and notes to be issued by the Commonwealth.

Chapter 400 - An Act authorizing municipal growth and development policy committees.

ADMINISTRATIVE BUDGET

Budgetary appropriations for the Division of Water Pollution Control are shown in the following table:

APPROPRIATION 2200-0181

ACCOUNT	TITLE	FY'1987	FY'1988
01, 02	Salaries	2,715,210	2,831,216
03	Services, NON-Employees	45,450	17,160
05	Clothing	-	-
07	Lab Supplies & Exp.	9,031	4,441
08	Heat and Other Plant Oper.	650	-
10	Travel & Auto Expenses	29,000	21,113
11	Advertising	25,000	26,822
12	Maintenance	14,000	18,295
13	Special Studies	5,525	50,678
14	Office & Admin. Expenses	33,976	28,106
15	Equipment	5,972	4,914
16	Rentals	12,500	2,287
	TOTALS	$2,897,140	$3,005,032

Statement of Funds Received
By the
Division of Water Pollution Control
and
Transferred to State Treasurer
June 30, 1988

General Fund Receipts:	6/30/88
Miscellaneous Income	$ 916
Bond Fund Refund	-0-
Sewer Collection Filing Fee's	58,225
Total Receipts Transferred to State Treasurer:	$ 59,141

FISCAL YEARS COMPARISON

ACTS OF 1966
CHAPTER 687

		JUNE 30 1974	JUNE 30 1975	JUNE 30 1976	JUNE 30 1977	JUNE 30 1978
2685-9013	RESEARCH AND DEMONSTRATION	438,089.16	680,643.63	553,573.74	216,441.76	392,066.15
2685-9015	CONSTRUCTION GRANTS	13,754,203.91	12,510,578.97	15,548,169.62	7,217,032.73	7,809,529.25
2685-9016	PRE-FINANCING FEDERAL SHARE	1,229,145.00				
2685-9018	COMPREHENSIVE	22,117.50				
2685-9019	CURB OF OIL POLLUTION	85,645.70	25,818.59	19,157.21	89,756.44	54,829.65
2685-9021	PESTICIDE MONITORING	9,823.20				
2685-9021	UNIVERSITY OF MASSACHUSETTS	69,669.33	35,696.38	184,056.27	124,992.48	111,399.97
2685-9023	BERKSHIRE COMM. COLLEGE					
2685-9023	BRIDGEWATER STATE COLLEGE					
2685-9024	INDUSTRIAL, MUNICIPAL & RIVER SURVEY	161,016.24	940.69			
2685-9025	BASIN PLANNING	36,761.52	33,135.92	15,578.14	19,921.67	3,606.09
FISCAL YEAR TOTAL CHAPTER 687		15,806,471.56	13,286,814.18	16,320,534.98	7,668,145.08	8,371,431.11

FISCAL YEARS COMPARISON

ACTS OF 1966
CHAPTER 687

		JUNE 30 1979	JUNE 30 1980	JUNE 30 1981	JUNE 30 1982	JUNE 30 1983	JUNE 30 1984
2685-9013	RESEARCH AND DEMONSTRATION	719,249.28	369,712.60	243,050.24	350,112.24	547,215.72	692,628.64
2685-9015	CONSTRUCTION GRANTS	4,081,645.00	3,756,503.00	7,024,555.25	6,348,212.00	5,859,061.80	2,712,689.80
2685-9016	PRE-FINANCING FEDERAL SHARE				-0-	-0-	
2685-9018	COMPREHENSIVE PLANNING				-0-	-0-	
2685-9019	CURB OF OIL POLLUTION	198,442.49	121,095.00	354,348.69	678,291.56	456,667.51	53,854.89
2685-9021	PESTICIDE MONITORING				-0-	-0-	
2685-9021	UNIVERSITY OF MASSACHUSETTS	151,941.24	37,143.79		-0-	-0-	
2685-9023	BERKSHIRE COMM. COLLEGE				-0-	-0-	
2685-9023	BRIDGEWATER STATE COLLEGE				-0-	-0-	
2685-9024	INDUSTRIAL, MUNICIPAL & RIVER SURVEY				-0-	-0-	
2685-9025	BASIN PLANNING	11,121.73	3,899.21		-0-	-0-	238.33
FISCAL YEAR TOTAL CHAPTER 687		5,162,399.74	4,288,353.60	7,621,954.18	7,376,615.80	6,862,944.23	3,459,411.66

FISCAL YEARS COMPARISON

ACTS OF 1966
CHAPTER 687

		JUNE 30 1986	JUNE 30 1987	JUNE 30 1988	TOTALS TO JUNE 30, 1988
2685-9013	RESEARCH AND DEMONSTRATION	157,111.56	224,255.78	27,924.54	7,886,529.47
2685-9015	CONSTRUCTION GRANTS	2,124,711.00	2,238,782.00	6,698,318.92	138,084,882.17
2685-9016	PRE-FINANCING FEDERAL SHARE	-0-	-0-		3,319,380.00
2685-9018	COMPREHENSIVE PLANNING	-0-	-0-		98,055.83
2685-9019	CURB OF OIL POLLUTION	-0-	-0-		2,565,813.20
2685-9021	PESTICIDE MONITORING	-0-	-0-		104,318.03
2685-9021	UNIVERSITY OF MASSACHUSETTS	-0-	-0-		998,947.00
2685-9023	BERKSHIRE COMM. COLLEGE	-0-	-0-		7,750.00
2685-9023	BRIDGEWATER STATE COLLEGE	-0-	-0-		7,997.80
2685-9024	INDUSTRIAL, MUNICIPAL & RIVER SURVEY	-0-	-0-		259,401.71
2685-9025	BASIN PLANNING	-0-	-0-		131,740.60
FISCAL YEAR TOTAL CHAPTER 687		2,281,822.56	2,463,037.78	6,726,243.46	53,349,681.21

BOND FUND EXPENDITURES
FISCAL YEAR COMPARISON
ACTS OF 1970
CHAPTER 747

		JUNE 30 1974	JUNE 30 1975	JUNE 30 1976	JUNE 30 1977	JUNE 30 1978
2685-9050	CONSTRUCTION GRANTS		1,374,137.79	14,003,351.66	12,387,045.98	12,963,574.46
FISCAL YEAR TOTAL CHAPTER 747			1,374,137.79	14,003,351.66	12,387,045.98	12,963,574.46

BOND FUND EXPENDITURES
FISCAL YEARS COMPARISON

ACTS OF 1970
CHAPTER 747

		JUNE 30 1979	JUNE 30 1980	JUNE 30 1981	JUNE 30 1982	JUNE 30 1983
2685-9050	CONSTRUCTION GRANTS	22,411,019.00	20,341,847.72	18,719,608.29	17,757,521.00	19,930,345.39
2685-9051	COLLECTION SEWER			249,347.00	4,210,082.00	7,009,176.00
2685-9052	LATERAL SEWERS WEYMOUTH			256,690.00	76,010.00	-0-
FISCAL YEAR TOTAL CHAPTER 747		22,411,019.00	20,341,847.72	19,225,645.29	22,043,613.00	26,939,521.39

BOND FUND EXPENDITURES
FISCAL YEARS COMPARISON

ACTS OF 1970
CHAPTER 747

		JUNE 30 1985	JUNE 30 1986	JUNE 30 1987	JUNE 30 1988	TOTALS TO JUNE 30, 1988
2685-9050	CONSTRUCTION GRANTS	11,234,220.95	11,760,155.00	5,652,674.15	20,911,369.41	201,668,146.00
2685-9051	COLLECTION SEWER	6,417,586.00	10,363,354.00	4,108,089.00	1,702,733.00	42,078,968.18
2685-9052	LATERAL SEWERS WEYMOUTH	-0-				332,700.00
FISCAL YEAR TOTAL CHAPTER 747		17,651,806.95	22,123,509.00	9,760,763.15	22,614,102.41	244,079,814.18

BOND FUND EXPENDITURES
FISCAL YEAR COMPARISON
ACTS OF 1982
CHAPTER 286

		JUNE 30 1984	JUNE 30 1985	JUNE 30 1986	JUNE 30 1987	JUNE 30 1988	TOTALS TO JUNE 30 1988
2240-8821	METHUEN	469,305.00	349,987.00	174,775.00	-0-	5,933.00	1,000,000.00
2240-8822	CONSTRUCTION GRANTS	10,344,763.00	9,677,349.44	12,299,364.00	21,425,581.00	24,055,818.08	78,096,542.52
2240-8823	COLLECTION SYSTEMS			3,550,073.00	12,700,924.28	17,100,379.00	33,351,376.28
2240-8824	R & D			337,765.06	574,092.28	1,372,226.82	2,415,750.59
2240-8826	LAKES AND PONDS RESTORATION	78,516.56	711,393.27	825,093.89	1,239,388.73	1,347,600.06	4,271,927.70
2240-8828	SLUDGE PLANT	450,000.00	50,000.00	-0-	-0-	-0-	500,000.00
2240-8829	INFLOW/INFILTRATION PROJECTS				-0-	6,356,192.00	8,585,703.00
2240-9829	INFLOW/INFILTRATION ANALYSIS				22,992.96	137,939.87	538,563.62
FISCAL YEAR TOTAL CHAPTER 286		11,342,584.56	10,920,396.14	17,210,063.91	38,547,128.08	50,376,088.83	128,759,863.71

BOND FUND EXPENDITURES
FISCAL YEAR COMPARISON
ACTS OF 1982
CHAPTER 286

		JUNE 30 1986	JUNE 30 1987	JUNE 30 1988	TOTALS TO JUNE 30 1988
2240-8861	COLLECTION SYSTEMS	-0-	-0-	2,461,593.00	-0-
2240-8862	CONSTRUCTION GRANTS FEDERAL MATCH	-0-	11,853.00	3,890,327.59	11,853.00
2240-8863	CONSTRUCTION GANTS STATE ASSIST	-0-		1,364,935.00	-0-
		-0-	11,853.00	7,716,855.59	7,728,708.59

BOND FUND ANALYSIS
FISCAL YEAR COMPARISON
ACTS OF 1982
CHAPTER 286

YEAR	APPROPRIATION	UNALLOTTED	ALLOTTED	RESERVATION PURCHASE ORDER	EXPENDITURE	UNENCUMBERED ALLOTMENT
1983	250,750,000.00	232,834,114.00	17,915,886.00	8,698,200.00	363,602.19	8,776,733.00
* 1984	250,000,000.00	202,731,707.97	47,268,292.03	31,785,372.28	11,706,186.75	3,776,733.00
1985	250,000,000.00	183,475,935.97	66,524,064.03	43,818,374.07	22,626,582.89	79,107.07
**1986	350,000,000.00	214,564,815.95	135,435,184.05	93,664,921.76	39,836,646.80	1,933,615.49
1987	350,000,000.00	126,158,684.42	223,841,315.58	-0-	78,383,774.88	145,457,540.70
1988	350,000,000.00	110,830,901.94	239,169,098.06	-0-	128,759,863.71	110,409,234.35

* $750,000.00 IN ACCOUNT 2240-8827 MCLAUGHLIN FISH HATCHERY - TRANSFERRED TO DEPT OF ENVIRONMENTAL MANAGEMENT.

** $99,000,000.00 TRANSFERRED INTO 2240-8829 FOR INFLOW/INFILTRATION PROJECTS
$ 1,000,000.00 TRANSFERRED INTO 2240-9829 FOR INFLOW/INFILTRATION ANALYSIS PROJECTS

BOND FUND ANALYSIS
FISCAL YEAR RECAPULATION
ACTS OF 1985
CHAPTER 786

YEAR	APPROPRIATION	UNALLOTTED	ALLOTTED	RESERVATION PURCHASE ORDER	EXPENDITURE	UNENCUMBERED ALLOTMENT
1986	357,000,000.00	357,000,000.00	-0-	-0-	-0-	-0-
1987	357,000,000.00	320,518,734.00	36,481,266.00	-0-	11,853.00	36,469,413.00
1988	357,000,000.00	173,098,230.00	183,901,770.00	-0-	7,728,708.59	176,173,061.41

BOND FUND
JUNE 30, 1988
CHAPTER 687
ACTS 1966

APPROPRIATIONS		
REGULAR		
1967 Fiscal Year		150,000,000.00
Addition Transfer and Credits		
REIMBURSEMENT PRE-FINANCING		
FEDERAL SHARE		
1974 Fiscal Year	2,939,800.00	
1975 Fiscal Year	379,580.00	3,319,380.00
OIL SPILL RECOVERIES		
1970 Fiscal Year	1,095.75	
1971 Fiscal Year	9,787.75	
1972 Fiscal Year	17,397.56	
1973 Fiscal Year	32,463.89	
1974 Fiscal Year	18,101.45	
1975 Fiscal Year	51,093.84	
1976 Fiscal Year	1,277.30	
1977 Fiscal Year	26,000.00	
1978 Fiscal Year	39,510.77	
1979 Fiscal Year	33,368.53	
1980 Fiscal Year	9,117.96	
1981 Fiscal Year	5,629.34	
1982 Fiscal Year	39,523.44	
1983 Fiscal Year	34,268.92	
1984 Fiscal Year	295,460.87	
1985 Fiscal Year	85,210.84	
1986 Fiscal Year	47,973.84	
1987 Fiscal Year	0	
1988 Fiscal Year	0	
TOTAL RECOVERED		747,282.05
TOTAL APPRORPATIONS		154,066,662.05
UNALLOTTED APPROPRIATIONS		680,861.08
ALLOTTED APPROPRIATIONS		$153,385,800.97

RESERVE FOR ENCUMBRANCES, BALANCES JUNE 30, 1987	0
EXPENDITURES AND UNENCUMBERED ALLOTMENT	153,385,800.97

EXPENDED FUNDS

1969 Fiscal Year	3,909,955.72	
1970 Fiscal Year	5,794,991.80	
1971 Fiscal Year	7,481,857.81	
1972 Fiscal Year	11,598,527.02	
1973 Fiscal Year	11,696,067.71	
1974 Fiscal Year	15,806,471.56	
1975 Fiscal Year	13,286,814.18	
1976 Fiscal Year	16,320,534.98	
1977 Fiscal Year	7,668,145.08	
1978 Fiscal Year	8,371,431.11	
1979 Fiscal Year	5,162,399.74	
1980 Fiscal Year	4,288,353.60	
1981 Fiscal Year	7,621,954.18	
1982 Fiscal Year	7,376,615.80	
1983 Fiscal Year	6,862,944.23	
1984 Fiscal Year	3,459,411.66	
1985 Fiscal Year	5,287,235.37	
1986 Fiscal Year	2,265,675.42	
1987 Fiscal Year	2,364,050.78	
1988 Fiscal Year	6,726,243.46	
TOTAL EXPENDED FUNDS		153,349,681.21
UNENCUMBERED ALLOTMENT, JUNE 30, 1988		36,125.76

BOND FUND ANALYSIS
FISCAL YEAR RECAPITULATION

YEAR	APPROPRIATION	UNALLOTTED	ALLOTTED	RESERVATION PURCHASE ORDER	EXPENDITURE	UNENCUMBERED ALLOTMENT
ACTS OF 1966 CHAPTER 687						
1967	150,000,000.00	150,000,000.00				
1968	150,000,000.00	135,122,000.00	14,878,000.00	6,152,038.00		8,725,962.00
1969	150,000,000.00	126,298,639.00	23,701,361.00	18,650,884.28	3,909,955,72	1,140,521.00
1970	150,001,095.00	115,443,105.75	34,557,990.00	19,085,055.97	9,704,947.52	5,767,986.51
1971	150,010,883.50	96,019,927.50	53,990,956.00	26,662,561.00	17,186,805.33	10,141,589.07
1972	150,028,281.06	91,329,318.06	59,698,263.00	28,202,688.44	28,785,332.35	1,737,942.21
1973	150,060,744.95	78,740,303.75	71,320,441.20	28,523,426.78	40,481,400.06	2,315,614.16
1974	154,018,646.40	56,629,381.70	96,389,264.70	40,009,411.24	56,287,871.62	91,951.84
1975	153,559,320.24	41,489,621.36	111,959,698.88	40,151,768.63	69,574,685.80	2,233,244.45
1976	153,450,597.54	29,652,275.76	123,798,321.78	37,640,584.23	85,895,220.78	262,516.77
1977	153,476,597.54	29,499,383.13	123,977,214.41	30,298,107.06	93,563,365.86	115,741.49
1978	153,516,108.31	23,766,011.33	129,750,096.98	27,491.405.16	101,934,796.97	323,894.85
1979	153,549,476.84	18,758,337.88	134,791,138.96	27,501,307.41	107,097,196.71	192,634.84
1980	153,558,594.80	13,559,823.92	139,998,770.88	28,009,821.22	111,385,550.31	603,339.35

BOND FUND ANALYSIS
FISCAL YEAR RECAPITULATION

ACTS OF 1966 CHAPTER 687

YEAR	APPROPRIATION	UNALLOTTED	ALLOTTED	RESERVATION PURCHASE ORDER	EXPENDITURE	UNENCUMBERED ALLOTMENT
1981	153,564,224.14	5,839,698.42	147,724,525.72	26,503,376.50	119,007,504.49	2,213,644.73
1982	153,603,747.58	3,218,769.98	150,474,977.60	24,044,485.17	126,384,120.29	46,372.14
1983	153,638,016.50	1,177,659.97	152,460,356.53	19,195,595.14	133,247,064.52	17,696.87
1984	153,933,477.37	539,362.63	153,394,114.74	16,548,725.41	136,706,476.18	138,913.15
1985	154,018,688.21	632,872.09	153,385,816.12	11,168,628.00	141,993,711.55	223,476.57
1986	154,066,662.05	678,916.75	153,387,745.30	8,977,172.32	144,410,572.98	151,186.01
1987	154,066,662.05	687,901.76	153,378,760.29	-0-	146,623,437.75	6,755,328.54
1988	154,066,662.05	680,861.08	153,385,800.97	-0-	153,349,681.21	36,125.76

BOND FUND
JUNE 30, 1988
CHAPTER 747
ACTS 1970

APPROPRIATION		
REGULAR		
1971 Fiscal Year	250,000,000.00	
TOTAL APPROPRIATIONS		250,000,886.00
UNALLOTED APPROPRIATIONS		598,451.82
ALLOTTED APPROPRIATION		249,402,434.18
RESERVE FOR ENCUMBRANCES, BALANCE		0
EXPENDITURES AND UNENCUMBERED ALLOTMENT		249,402,434.18
EXPENDED FUNDS		
1975 Fiscal Year	1,374,137.79	
1976 Fiscal Year	14,003,351.66	
1977 Fiscal Year	12,387,045.98	
1978 Fiscal Year	12,963,574.46	
1979 Fiscal Year	22,411,019.00	
1980 Fiscal Year	20,341,842.72	
1981 Fiscal Year	19,225,645.29	
1982 Fiscal Year	22,043,613.00	
1983 Fiscal Year	26,939,521.39	
1984 Fiscal Year	20,239,916.38	
1985 Fiscal Year	17,651,806.95	
1986 Fiscal Year	22,123,509.00	
1987 Fiscal Year	9,760,763.15	
1988 Fiscal Year	22,614,102.41	
TOTAL EXPENDED FUNDS		244,079,854.18
UNENCUMBERED ALLOTMENT, JUNE 30, 1987		5,322,580.00

ACTS OF 1970 CHAPTER 747

YEAR	APPROPRIATION	UNALLOTTED	ALLOTTED	RESERVATION PURCHASE ORDER	EXPENDITURE	UNENCUMBERED ALLOTMENT
1971	250,000,000.00	250,000,000.00				
1972	250,000,000.00	250,000,000.00				
1973	250,000,000.00	250,000,000.00				
1974	250,000,000.00	239,236,590.76				10,763,409.24
1975	250,000,000.00	225,382,887.61	24,617,112.39	23,048,049.60	1,374,137.79	194,925.00
1976	250,000,000.00	218,098,313.61	31,901,686.39	16,524,196.94	15,377,489.45	
1977	250,000,000.00	171,114,342.61	78,885,657.39	47,707,483.96	27,764,535.43	3,414,636.00
1978	250,000,000.00	132,593,322.61	117,406,677.39	76,678,567.50	40,728,109.89	-0-
1979	250,000,000.00	123,464,293.61	126,535,706.39	63,132,516.50	63,139,128.89	264,061.00
1980	250,000,000.00	91,840,232.61	158,159,767.39	73,874,059.78	83,480,976.61	804,731.00
1981	250,000,000.00	72,240,120.61	177,759,879.39	67,684,258.49	102,706,621.90	7,368,999.00
1982	250,000,000.00	49,735,300.61	200,264,699.39	73,579,955.49	124,750,234.90	1,934,509.00
1983	250,000,000.00	29,688,080.61	220,311,919.39	68,622,152.15	151,689,756.29	10.95
1984	250,000,000.00	1,172,123.82	248,827,876.18	62,622,086.51	171,929,672.67	14,276,117.00
1985	250,000,886.00	1,077,565.82	248,923,320.18	58,298,095.56	189,581,479.62	1,043,745.00
1986	250,000,886.00	226,882.82	249,774,003.18	37,931,057.56	211,704,988.62	137,957.00
1987	250,000,886.00	434,379.82	249,566,506.18	-0-	221,465,751.77	28,100,754.41
1988	250,000,866.00	598,451.82	249,402,434.18	-0-	244,079,854.18	5,322,580.00

CHAPTER 747 OF 1970 EXPIRES 6/30/87

BOND FUND
JUNE 30, 1988
CHAPTER 286
ACTS 1982

APPROPRIATION			
REGULAR			
1982 Fiscal Year	250,000,000.00		
ADDITION TRANSFER AND CREDITS			
1983 Fiscal Year	750,000.00		
* 1984 Fiscal Year	-750,000.00		
1986 Fiscal Year	100,000,000.00		
TOTAL APPROPRIATIONS			350,000,000.00
UNALLOTED APPROPRIATIONS			110,830,901.94
ALLOTTED APPROPRIATIONS			239,169,098.06
RESERVE FOR ENCUMBRANCES, BALANCE JUNE 30, 1987			0
EXPENDITURES AND UNENCUMBERED ALLOTMENT			239,169,098.06
EXPENDED FUNDS			
1983 Fiscal Year		363,602.19	
1984 Fiscal Year		11,342,584.56	
1985 Fiscal Year		10,920,396.14	
1986 Fiscal Year		17,210,063.91	
1987 Fiscal Year		38,547,128.08	
1988 Fiscal Year		50,376,088.83	
TOTAL EXPENDED FUNDS			128,759,863.71
UNENCUMBERED ALLOTMENT, JUNE 30, 1987			110,409,234.35

* $750,000.00 APPROPRIATION (MCLAUGHLIN FISH HATCHERY) TRANSFERRED TO THE DEPARTMENT OF ENVIRONMENTAL MANAGEMENT.

BOND FUND
JUNE 30, 1988
CHAPTER 786
ACTS OF 1986

APPROPRIATIONS		357,000,000.00
UNALLOTTED FUNDS		173,098,230.00
ALLOTTED FUNDS		183,901,770.00
EXPENDED FUNDS		
Fiscal Year 1987	11,853.00	
Fiscal Year 1988	7,716,855.59	
TOTAL EXPENDITURES		7,728,708.59
UNENCUMBERED ALLOTMENT, JUNE 30, 1987		176,173,061.41

MUNICIPAL WASTEWATER TREATMENT FACILITIES

STATE/EPA CONSTRUCTION GRANTS PROGRAM

Under the Massachusetts Clean Water Act (M.G.L. Chapter 21) as amended, the Commonwealth provided financial assistance to municipalities and districts for water pollution abatement projects. This program encompasses the planning, design and construction of wastewater treatment facilities, major pumping stations, interceptor sewers, infiltration/inflow correction and rehabilitation work. For the planning and design phases of these facilities, the Division provided ninety percent (90%) state planning grants during this past year; thirty of these grants were made, totalling over seven and a half million dollars.

The Division of Water Pollution Control, pursuant to an agreement between the Department of Environmental Quality Engineering and the Environmental Protection Agency, is delegated the responsibility for administration of the Federal grant program which entails most of the procedures necessary for the award of EPA construction grants to projects in the Commonwealth of Massachusetts. Under this program, the state provided fifty five percent (55%) grants coupled with thirty five percent (35%) EPA grants. Through this joint program, nine state grants totalling eighty-three million dollars and nine federal grants totalling fifty-three million dollars were made for construction during the past year.

Under the Infiltration/Inflow program, the state provided ninety percent (90%) state funds and required ten percent (10%) local share. During Fiscal Year 1988 fifty-seven grants and grant increases were made for analysis, design and construction, representing eight million dollars in state grants.

The Tier II State Construction Grants Program was established by Chapter 786 of the Acts of 1985, amending the Massachusetts Clean Water Act (M.G.L. Chapter 21). Under this program, the Division provided financial assistance to municipalities and districts in the form of a 70% state grant for the construction of wastewater treatment facilities, major pumping station and interceptor sewers. For Fiscal Years 1986-89, twenty million per year in grant funds were authorized for these projects. In the past year, twenty-nine grants totalling approximately $49.6 million in state funds were awarded.

ENGINEERING REPORTS AND FACILITY PLANNING PROJECTS

APPROVED DURING FISCAL YEAR 1988

GRANT NO.	MUNICIPALITY	PROJECT DESCRIPTION	APPROVAL DATE
I169	Adams	Phase II SSES	1/13/88
362-02	Athol	Sewer Use Ordinance	5/10/88
424-01	Barnstable	Pilot Study	5/18/88
424-01	Barnstable	User Charge System-Revision	5/18/88
870-S2	Belchertown	Interceptor I/I Report	9/8/87
627-02	Charlemont	Sewer Use Ordinance	2/9/88
627-02	Charlemont	User Charge	2/9/88
688-01	Dudley	Facility Plan	7/2/87
709-02	Dudley	Sewer Use Ordinance	7/2/87
283-02	L.W.S.C.	Plan of Operation & Closure Plan	6/28/88
713-02	M.W.R.A.	D.I., Plan of Operation	3/16/88
713-07	M.W.R.A.	D.I. Wastewater Transp. Fac.	5/6/88
745-01	M.W.R.A.	Wellesley Ext. Int. Replacement	4/19/88
304-02	M.W.R.A./Clinton	Value Eng. Study	4/21/88
470-02	Marshfield	Report Grit, Septage and Grease Handling	6/29/88
113-1	Maynard	Dechlorination Fac.	1/5/87
309	Milford	O&M Manual	9/18/87
524	Orleans	Septage Sampling	3/1/88
524	Orleans	Septic System Maint.	3/1/88
524-03	Orleans	Plan of Operation	6/29/88
431-02	Stockbridge	O&M Manual	1/8/88
412-S2	Watertown	User Charge Study	7/27/87

GRANT NO.	MUNICIPALITY	PROJECT DESCRIPTION	APPROVAL DATE
689-01	Webster	Facility Plan	7/2/87
709-S2	Webster	Sewer Use Ordinance	7/2/87
709-S2	Webster	User Charge	7/2/87
709-01	Webster	Facility Plan	7/2/87
448-03	Westborough	Pretreatment Program	12/18/87

FINAL CONTRACT PLANS AND SPECIFICATIONS

REVIEWED AND APPROVED DURING FISCAL YEAR 1988

GRANT NO.	MUNICIPALITY	PROJECT DESCRIPTION	APPROVAL DATE
110-1	Arlington	Pump Station	9/28/87
362-02	Athol	Sludge Equipment	9/30/87
630-03	B.W.S.C.	South End Separation, SD-9, 10 & 11	10/23/87
396-06	Beverly	Lower Bass River Int.	8/10/87
627-02	Charlemont	WWTP, Int. & Sewer System	5/5/88
328-02	Chelmsford	Chelmsford Center Int.	1/14/88
104-1	Chelmsford	N. Chelmsford Pump Station	8/13/87
DCPO	Comm. of Mass. Dept. of Correct. Bridgewater MCI	Improve. to Bridgewater MCI-WTP-1-84-4	7/17/87
481	Fall River	Purchase Specification	6/27/88
78-1	Gloucester	Outfall	3/23/88
693-02	Hadley	Sludge Equipment	9/28/87
285-03	Hatfield	Contract No. 3 Elm Street Sewer	10/22/87
378-02	Leicester W.S.D.	Sludge Equipment	11/20/87
284-01	Lowell	Improve. to WWTP	10/13/87
283-03	Lynn	Secondary WWTP	9/7/87
640-03	M.W.R.A.	Commercial Point-CSO	1/15/88
731-01	M.W.R.A.	Chelsea Screen House	12/16/87
713-07	M.W.R.A.	Deer Island Pipe Piles	3/11/88
713-07	M.W.R.A.	Deer Island Sheet Piles	3/11/88
713-07	M.W.R.A.	Deer Island Pier	4/14/88
745-03	M.W.R.A.	Wellesley Ext. Replacement Int. Contract 1, 2 & 3	10/19/87

GRANT NO.	MUNICIPALITY	PROJECT DESCRIPTION	APPROVAL DATE
304-02	M.W.R.A./Clinton	Contr. 5443/WWTP	6/1/88
304-02	M.W.R.A./Clinton	Contr. 5444/Pipelines	6/1/88
113-1	Maynard	Dechlor. Fac.	1/5/87
708-02	Montague	Sewer Repairs	8/3/87
022-01	Pittsfield	Sludge Handling Vehicles	3/9/88
456-05	S.E.S.D.	Contr. #81-9B-Bass River Crossing	9/24/87
456-05	S.E.S.D.	Contr. #81-12-Force Main	9/24/87
431-02	Stockbridge	Contract No. 1A Sludge Landfill	7/7/87
431-02	Stockbridge	Landfill Equipment	7/7/87
709-S2	Webster	Regional WWTF	7/15/87
448-03	Westborough	Miscellaneous Ship Tools	10/27/87
684-04	Winthrop	Sewer Sys. Improve.	9/13/87

REVIEW AND APPROVAL OF
BIDDING PROCEDURE AND AWARD OF CONTRACT
DURING FISCAL YEAR 1988

GRANT NO.	MUNICIPALITY	PROJECT DESCRIPTION	AWARD DATE	AWARD AMOUNT
110-1	Arlington	Pump Station	3/11/88	$ 1,881,057
362-02	Athol	Sludge Equipment	1/4/88	92,974
630-02	B.W.S.C.	Sewer Separation	9/4/87	10,484,431
443	Bellingham	Contract #86-1R	5/24/88	1,147,772
657-02	Billerica	P.S., F.M. & Int.	3/31/88	20,331,000
688-02	Dudley	Sewer Rehabilitation	11/2/87	91,566
252-03	G.L.S.D.	WWTF Expansion	8/14/87	4,985,000
693-02	Hadley	Sludge Equipment	1/12/88	80,393
285-03	Hatfield	Cont. No. 3 Elm St. Sewers	3/11/88	435,155
706-02	Hopkinton	Pump Station	9/11/87	632,545
706-02	Hopkinton	Force Main	9/11/87	1,242,266
706-02	Hopkinton	Interceptor	9/11/87	722,935
378-02	Leicester W.S.D.	Sludge Equipment	1/12/88	76,848
625-02	Lenox	Interceptor and Sewer Rehab.	11/13/87	697,833
284-01	Lowell	Imp. to WWTP	3/8/88	1,034,950
283-02	Lynn	Vehicles	9/1/87	186,635
283-03	Lynn	Secondary WWTP	2/23/88	50,179,877
640-02	M.W.R.A.	Fox Point, CSO	7/24/87	3,940,789
713-07	M.W.R.A.	Sheet Pile Supply	6/14/88	1,179,750
713-07	M.W.R.A.	Piles	6/14/88	2,698,450
731-01	M.W.R.A.	Screen House	6/21/88	7,096,900
713-07	M.W.R.A.	Deer Island Pier	6/21/88	24,843,000
753-01	Marlborough	WWTF Modifications	8/10/87	11,235,866

GRANT NO.	MUNICIPALITY	PROJECT DESCRIPTION	AWARD DATE	AWARD AMOUNT
753-01	Marlborough	Compost/Landfill	9/25/87	7,427,000
708-02	Montague	Sewer Rehabilitation	4/4/88	253,673
473-03	Nantucket	Contract #6	7/7/87	9,731,560
595-02	No. Attleboro	Contract #86-S1 & 86-S2	9/29/87	4,000,000
454-02	Salisbury	Interceptor	2/2/88	1,848,372
454-02	Salisbury	Sewer Replacement	2/22/88	4,007,970
499-04	Saugus	Interceptor	12/30/87	3,013,050
431-02	Stockbridge	Cont. 1A Sludge Landfill	1/12/88	190,700
431-02	Stockbridge	Landfill Equipment	1/5/88	87,044
859-01	U.B.W.P.A.D.	Training Center	7/27/87	25,998
551-02	Warren	WWTP	11/4/87	8,582,060
709-02	Webster	Regional WWTF	5/2/88	33,770,000
448-04	Westborough	Pump Sta. (Contr. #86-2)	1/22/88	1,438,941
448-04	Westborough	Int. & F.M.-Contr. #86-1	1/22/88	1,867,531
448-03	Westborough	Misc. Shop Tools	1/6/88	12,571
687-04	Winthrop	Interceptor	4/4/88	1,531,481
347-07	Worcester	Rehab.	7/13/87	1,490,560
347-07	Worcester	CSO	7/13/87	1,377,042
347-04	Worcester	CSO Facility Equipment	5/9/88	38,696
347-04	Worcester	CSO Facility Truck & Cleaner	10/26/87	72,513

STATE PLANNING GRANTS - (STEP 1)

NO.	GRANTEE	AWARD DATE	TOTAL COST	ELIGIBLE COST	GRANT
863	Lynn	9/15/87	$ 892,709	$ 828,827	$ 745,944
867	Ware	8/5/87	$ 76,202	$ 76,202	$ 68,582
849	Swampscott	9/8/87	$ 232,970	$ 230,800	$ 207,720
886	Bourne	10/9/87	$ 78,500	$ 78,500	$ 70,650
866	Dalton	12/28/87	$ 20,000	$ 20,000	$ 18,000
888-01	Rockland	1/14/88	$ 77,836	$ 77,836	$ 70,052
865	Chicopee	3/22/88	$ 316,429	$ 316,429	$ 284,786
864	Ludlow	3/22/88	$ 50,000	$ 50,000	$ 45,000
895	MWRA	3/25/88	$1,621,363	$ 1,406,188	$ 1,265,569
883	Greenfield	4/13/88	$ 194,970	$ 194,970	$ 175,473
857	Westford	5/3/88	$ 163,172	$ 162,549	$ 146,294
882	Erving	5/3/88	$ 66,903	$ 66,903	$ 60,213
892	Webster	5/23/88	$ 107,903	$ 107,903	$ 97,113
903	Provincetown	5/23/88	$ 246,634	$ 246,634	$ 221,970
887	Scituate	5/25/88	$ 862,740	$ 851,440	$ 766,296
		TOTALS	$5,008,331	$ 4,715,181	$ 4,243,662

STATE PLANNING GRANTS - (STEP 2)

NO.	GRANTEE	AWARD DATE	TOTAL COST	ELIGIBLE COST	GRANT
679	Wareham	7/17/87	$ 319,699	$ 319,699	$ 287,729
870	Belchertown	10/1/87	$ 72,838	$ 68,116	$ 61,304
841	GLSD	10/14/87	$ 260,800	$ 234,507	$ 211,056
556	Chatham	1/29/88	$ 174,497	$ 174,497	$ 157,047
896	Medfield	2/26/88	$ 62,000	$ 62,000	$ 55,800
898	Bellingham	2/26/88	$ 560,600	$ 385,561	$ 347,005
854	CRPCD	2/26/88	$ 492,730	$ 475,356	$ 427,820
474-06	New Bedford	2/26/88	$ 69,090	$ 53,625	$ 48,263
890	CRPCD	3/25/88	$ 428,570	$ 426,260	$ 383,634
900	Springfield	3/24/88	$ 400,800	$ 400,800	$ 360,720
899	GLSD	3/29/88	$ 443,449	$ 351,521	$ 316,369
773-02	Abington	4/13/88	$ 378,450	$ 351,425	$ 316,283
421-02	Braintree	4/20/88	$ 132,400	$ 132,400	$ 119,160
906	Hopkinton	6/23/88	$ 336,026	$ 52,323	$ 47,091
907	Norwood	6/23/88	$ 326,629	$ 326,629	$ 293,966
		TOTALS	$4,458,578	$ 3,814,719	$ 3,433,247

FEDERAL GRANTS - CONSTRUCTION (Step 3)

NO.	GRANTS	AWARD DATE	TOTAL COST	ELIGIBLE COST	GRANT
443-02	Bellingham	7/17/87	$ 844,342	$ 807,668	$ 282,684
709-02	Webster	8/3/87	$12,920,536	$12,773,620	$ 4,470,767
396-06	Beverly	9/23/87	$ 1,159,317	$ 1,100,612	$ 385,214
283-03	Lynn W&S.C.	9/24/87	$53,963,973	$53,910,957	$18,868,835
687-04	Winthrop	9/24/87	$ 2,212,190	$ 2,208,905	$ 773,117
456-06	SESD	12/4/87	$ 8,330,124	$ 8,300,124	$ 2,905,043
630-03	BWSC	1/15/88	$11,399,400	$10,451,951	$ 3,658,183
713-07	MWRA	6/10/88	$29,962,865	$28,352,513	$10,487,002
304	MWRA	6/17/88	$35,214,000	$31,585,735	$11,572,381
		TOTALS	$156,006,747	$149,492,085	$53,403,226

STATE GRANTS - CONSTRUCTION (STEP 3)

NO.	GRANTEE	AWARD DATE	TOTAL COST	ELIGIBLE COST	GRANT
443	Bellingham	7/17/87	$ 844,342	$ 766,724	$ 421,698
709	Webster	8/3/87	$14,813,846	$14,168,473	$ 8,010,136
396-06	Beverly	9/23/87	$ 1,159,317	$ 1,100,612	$ 605,337
283-03	Lynn W.&S.C.	9/24/87	$53,963,973	$53,910,957	$29,651,026
687-04	Winthrop	9/24/87	$ 2,212,190	$ 2,208,905	$ 1,214,898
456-05	SESD	12/28/87	$ 8,330,124	$ 8,300,124	$ 4,565,068
630-03	BWSC	2/17/88	$11,399,400	$10,451,951	$ 5,748,573
713-07	MWRA	7/1/88	$36,195.120	$29,962,865	$15,593,882
304	MWRA (Clinton)	7/6/88	$36,869,646	$33,175,345	$17,188,637
		TOTALS	$165,787,958	$154,045,956	$82,999,255

FY 88
Infiltration/Inflow Grants
Chapter 472 Acts, of 1984

PROJECT NO.	STEP	GRANTEE	AWARD DATE	TOTAL COST	ELIGIBLE COST	90% GRANT
I-212	3	Lexington	7/10/87	240,565	169,524	152,572
I-188	1	Athol	7/13/87	60,999	60,999	54,900
I-186	1	Sunderland	7/13/87	22,000	22,000	19,600
I-196	1	Marion	7/29/87	59,385	59,385	53,477
I-143	1	Woburn	7/31/87	183,744	177,142	159,428
I-176	1	Worcester	7/31/87	80,528	71,774	64,597
I-162	1	Huntington	7/31/87	71,595	71,595	64,436
I-140	1	Middleborough	8/17/87	129,000	126,150	113,535
I-237	1	Everett	8/31/87	75,000	75,000	67,500
I-121	1	Randolph	8/31/87	91,000	91,000	81,900
I-196	1	Nahant	10/14/87	38,000	38,000	34,200
I-113	2	Medford	10/16/87	210,000	210,000	189,000
I-183	1	Peabody	10/16/87	163,556	163,556	147,200
I-124-2	2	Winchester	11/04/87	38,273	33,148	29,833
I-162	1	Montague	11/04/87	63,993	36,760	33,084
I-239	1	Maynard	11/04/87	108,560	108,560	97,704
I-189	1	Dalton	11/04/87	58,550	58,550	52,695
I-112	3	Foxboro	11/09/87	968,526	885,080	796,572
I-238	1	Rockland	11/16/87	104,079	104,079	93,671
I-241	1	Attleboro	11/16/87	33,750	33,350	30,015
I-135	2	Northfield	12/07/87	79,741	79,741	71,767
I-209	1	Concord	1/04/88	14,840	14,840	13,356
I-242	1	Chatham	1/04/88	67,635	67,635	60,872
I-118	1	Swampscott	1/04/88	247,064	247,064	222,358
I-148	1	Andover	1/04/88	137,862	137,862	124,076
I-171	2	Braintree	1/04/88	24,843	24,843	22,359
I-127	1	Buckland	1/04/88	75,151	75,151	67,636
I-154	1	Ipswich	1/04/88	109,435	109,435	98,492
I-218-2	3	MWRA	1/11/88	835,181	776,765	699,089

PROJECT NO.	STEP	GRANTEE	AWARD DATE	TOTAL COST	ELIGIBLE COST	90% GRANT
I-110	1	Brookline	1/11/88	196,829	196,829	177,146
I-117	1	Stoneham	2/08/88	22,865	22,089	19,808
I-118-1	1	Swampscott	2/24/88	44,000	40,447	36,402
I-191	1	Franklin	3/09/88	160,000	160,000	144,000
I-130	1	Hadley	3/09/88	61,326	61,326	55,193
I-232	1	Melrose	3/10/88	228,685	228,685	205,817
I-233	1	N. Attleboro	3/14/88	198,950	190,135	171,122
I-143	2	Worcester	3/14/88	46,180	46,180	41,562
I-206	3	Burlington	3/14/88	75,331	74,747	67,272
I-164	1	Natick	3/14/88	134,987	134,987	121,488
I-254	1	Plainville	3/14/88	43,200	43,200	38,880
I-179	1	Methuen	4/06/88	35,000	35,000	31,500
I-139	1	Wakefield	5/02/88	220,648	198,583	178,725
I-248	1	Lenox	5/05/88	46,157	46,157	41,541
I-104-3	3	BWSC	5/05/88	2,708,424	378,872	340,985
I-104-4	3	BWSC	5/05/88	324,434	324,434	291,991
I-104-2	3	BWSC	5/05/88	829,824	822,422	740,180
I-101-1	1	Winchendon	5/23/88	28,305	22,240	20,016
I-203-1	3	Williamstown	5/23/88	165,107	148,507	133,656
I-171	3	Braintree	5/23/88	256,422	198,204	178,384
I-253	1	Easthampton	5/23/88	248,850	248,850	223,965
I-246-1	1	Walpole	5/23/88	235,000	235,000	211,500
I-262	1	Norwood	5/23/88	116,375	116,375	104,738
I-197	2	Mattapoisett	5/23/88	28,131	24,131	21,718
I-106	1	Manchester	6/21/88	164,014	164,014	145,238
I-107	1	Newton	6/21/88	139,907	106,907	96,216
I-234	1	Nantucket	6/21/88	186,000	186,000	167,400
I-134	1	New Bedford	6/21/88	385,834	385,834	347,251
			Total	11,723,640	8,969,143	8,069,618

INFILTRATION/INFLOW PROGRAM

REVIEW AND APPROVAL OF PLAN AND SPECIFICATIONS OF CONTRACT DURING THE FISCAL YEAR 1988

GRANT NO.	MUNICIPALITY	PROJECT DESCRIPTION	APPROVAL DATE
I-206	Burlington	Sewer System Rehab.	3/ 3/88
I-171	* Braintree	Rehab. Sewer System	5/18/88
I-104-2	B.W.S.C.	Sewer Separation	5/ 5/88
I-104-3	B.W.S.C.	Sewer Separation	5/ 5/88
I-104-4	B.W.S.C.	Sewer Separation	5/ 5/88
I-112	Foxboro	Sewer Separation & Rehab.	11/ 4/87
I-212	Lexington	Sewer System Improv.	7/13/87
I-218-2	M.W.R.A.	Slade Siphon at Mill Creek	1/11/88
I-107-3	Newton	Rehab. Sewer System	3/10/87

* Original contract will be divided into two contracts.

REVIEW AND APPROVAL OF BIDDING PROCEDURE AND AWARD OF CONTRACT DURING FISCAL YEAR 1988

GRANT NO.	MUNICIPALITY	PROJECT DESCRIPTION	AWARD DATE	AMOUNT
I-206	Burlington	Sewer System Rehab.	3/18/88	$ 67,272.00
I-112	Foxboro	Sewer Sep. & Rehab.	2/24/88	796,572.00
I-212	Lexington	Sewer Sys. Improv.	6/28/88	204,781.00
I-218-2	M.W.R.A.	Slade Siphon at Mill Creek	3/14/88	699,089.00
I-107-3	Newton	Rehab. Sewer Sys.	4/29/88	391,388.00

STATE GRANTS - TIER II PROGRAM

NUMBER	COMMUNITY	PROJECT DESCRIPTION	AWARD DATE	TOTAL COST	ELIGIBLE COST	70% GRANT
S104	Chelmsford	Southwell Field P.S.	7/9/87	1,952,524	1,898,765	1,329,136
S106	Whitman	Contract 8 - INT, P.S.	7/9/87	3,721,882	3,324,879	2,327,415
S101	Pepperell	Sludge Dewatering & Compost	8/10/87	1,871,915	1,797,143	1,258,000
S107	Pittsfield	Pecks Road INT	9/15/87	1,190,000	1,116,081	781,257
S108	South Hadley	Hillside Avenue Separ.	9/15/77	201,350	199,196	139,43
S111	Danvers	Contract Nos. 1,2 & 3	9/30/87	5,948,024	5,173,079	3,621,155
S102	Framingham	Farm Pond Interceptor	9/30/87	3,294,060	3,277,229	2,294,060
S110	Arlington	Dow Ave. P.S., F.M.	11/16/87	1,707,124	1,694,531	1,186,17
S113	Maynard	Dechlorination Facilities	11/30/87	350,000	350,000	245,000
S109	Malden	Pearl Street Interceptor	11/19/88	2,935,746	2,812,359	1,968,65
S125	GLSD	Scum Concentrator	2/3/88	279,695	279,695	195,78
S126	Holbrook	Contract 9A	5/3/88	1,093,494	937,379	656,16
S132	Medford	Phase I - Collection System Imp.	5/11/88	4,832,531	4,796,019	3,357,21
S114	Milton	Contract 3 & 4 Emergency Gen. & P.S.	5/31/88	690,000	677,455	474,21
S117	Braintree	Contract 1 - P.S. Rehab.	6/27/88	444,090	444,090	310,86
S139	Westfield	Contract 1887-2A Hampton Ponds	6/27/88	1,044,993	935,950	655,16
S137	SESD	Odor Control	6/27/88	5,027,800	5,012,650	3,508,85
S138	Springfield	Odor Control - Phase I	6/27/88	1,140,900	1,140,900	798,63
S131	Medfield	Sludge Handling and Disposal	6/27/88	715,000	715,000	500,50
S130	Medfield	Harding Street - Inter.	6/27/88	1,237,025	1,203,886	842,70
S112	Groton	Cont. 2 - Int. to Pepperell	6/27/88	2,418,700	2,371,293	1,659,90
S119	Chatham	Sludge Dewatering	6/27/88	2,396,357	2,392,757	1,674,93
S136	Salisbury	Elm Street Interceptor	6/27/88	1,414,436	1,212,854	848,99

NUMBER	COMMUNITY	PROJECT DESCRIPTION	AWARD DATE	TOTAL COST	ELIGIBLE COST	70% GRANT
S115	Belchertown	George Hannum Int.	6/27/88	1,277,830	1,264,830	885,381
S118	BWSC	South End Separation SD 16 & 17	6/28/88	6,685,187	6,534,543	4,574,180
S116	Bellingham	Bellingham Center Contract 89-2 & 2A	6/28/88	7,508,942	6,206,542	4,344,579
S123	Gloucester	North Gloucester - Contract 88-5 & 88-6	6/28/88	2,784,716	2,754,522	1,928,165
S120	CRPCD	I-495 Project	6/28/88	5,248,300	4,933,803	3,453,662
S141	GLSD	Ash Landfill	6/28/88	5,386,593	5,383,406	3,768,384
		TOTALS		74,799,214	70,840,836	49,588,564

Final Contract Plans and Specifications Reviewed and Approved during Fiscal Year 1988

WPC NUMBER	MUNICIPALITY	PROJECT DESCRIPTION	APPROVAL DATE
S110	Arlington	Contract 2 - Dow Avenue PS, FM	9/28/87
S115	Belchertown	George Hannum St. Int.	6/24/88
S116	Bellingham	Contract 89-2: Bellingham Center Int. Contract 89-2A: Pump Stations	6/28/88
S117	Braintree	Contract 1 - Pump Station Improvements	6/27/88
S118	BWSC	Contract SD 16 & 17 - Sewer Sep.	6/29/88
S119	Chatham	Contract 88-100: Sludge Dewatering	6/23/88
S104	Chelmsford	Contract 85-1: Southwell Field PS	8/14/87
		Contract 86-1: Natrina Rd. PS	1/6/88
S120	CRPCD	Contract 7: I-495 Int., FM	6/28/88
		Contract 8: I-495 PS	6/28/88
S111	Danvers	Contract 1 - PS Improvements	9/30/87
		Contract 2 - Int., PS, FM	9/30/87
		Contract 3 - Tapleyville Int.	9/30/87
S112	Groton	Contract 2 - Int., PS, FM	6/29/88
S126	Holbrook	Contract 9A - Phase I Sewers	5/16/88
S109	Malden	Pearl St. Int.	11/16/87
S113	Maynard	Dechlorination Facilities	1/5/88
S131	Medfield	Wastewater Treatment Facility Improvements	6/23/88
S132	Medford	Contract 84-1 Wastewater Collection System Improvements	5/9/88
S134	Milton	Contract 4 - Granite Ave. PS	5/26/88
S101	Pepperell	Contract 86-6: Proposed Additions to Wastewater Treatment Facility	7/13/87
S107	Pittsfield	Contract 1987-WW1-Peck's Road Replacement Int.	1/27/88
S136	Salisbury	Contract No. 8 - Elm Street Sewers	6/27/88
S108	South Hadley	Hillside Ave. Separation	8/25/87

Continued:

WPC NUMBER	MUNICIPALITY	PROJECT DESCRIPTION	APPROVAL DATE
S138	Springfield	Phase I - Odor Control	6/24/88
S139	Westfield	Contract 1987-2A: Hampton Ponds Int.	6/23/88
S106	Whitman	Contract 8 - Int., PS, FM	7/9/87

Review and Approval of Bidding Procedure and Award of Contract during Fiscal Year 1988

WPC NUMBER	MUNICIPALITY	PROJECT DESCRIPTION	DATE	AMOUNT
S110	Arlington	Contract 2 - Dow Avenue PS, FM	3/11/88	1,882,052
S104	Chelmsford	Contract 85-1: Southwell Field PS	11/13/87	2,029,500
		Contract 86-1: Southwell Field PS	6/27/88	1,979,700
S113	Maynard	Dechlorination Facilities	5/20/88	163,196
S101	Pepperell	Contract 86-6: Proposed Additions to Wastewater Treatment Facility	12/4/87	1,390,500
S107	Pittsfield	Contract No. 1987-WW1-Peck's Road Replacement Int.	4/4/88	776,995
S108	South Hadley	Hillside Ave. Separation	11/17/87	156,485
S106	Whitman	Contract 8 - Int., PS, FM	3/29/88	3,067,382
S105	Worcester	Grafton St. Int.	7/24/87	1,632,086

CONSTRUCTION GRANTS PROGRAM
BOND FUND
STATE PAYMENTS TO CITIES, TOWNS, AND DISTRICTS
FOR FISCAL YEAR ENDING JUNE 30, 1988

WPC NO.	GRANTEE	FY 88 STATE PAYMENTS
773	ABINGTON	238
828	AMHERST	45,935
782	ARLINGTON	50,505
362	ATHOL	154,964
295	ATTLEBORO	33,328
316	BARRE	3,278,766
870	BELCHERTOWN	45,157
443	BELLINGHAM	432,030
396	BEVERLY	62,720
341-06	BOSTON WATER & SEWER	599,710
341-07	BOSTON WATER & SEWER	212,793
341-09	BOSTON WATER & SEWER	3,276,642
B35	BOSTON WATER & SEWER	540,884
510-01	BOSTON WATER & SEWER	6,752
510-02	BOSTON WATER & SEWER	94,418
476-01	BOURNE	2,283
421	BRAINTREE	1,088
516	BRIDGEWATER	867,411
856	CAMBRIDGE	372,562
746	CHARLES RIVER POLL CONTROL	220,686
854	CHARLES RIVER POLL CONTROL	28,534
556	CHATHAM	268,245
328	CHELMSFORD	789,636
546	CHERRY VALLEY SEWER DIST	9,540
74-5	CHICOPEE	80,127
676	DANVERS	322,673
739	DARTMOUTH	74,580
852	DEERFIELD	57,283
480	DIGHTON	30,228
519	DRACUT	8,875
688	DUDLEY	40,962
588	DUXBURY	21,294
722	EDGARTOWN	23,373
292	ESSEX	5,831
808	EVERETT	3,045
635	FAIRHAVEN	3,833,465
589	FALL RIVER	15,807
725	FALL RIVER	53,733
728	FITCHBURG	36,785
658	FOXBORO	61,118
823	FRAMINGHAM	43,661
611	FRANKLIN	13,788
329	GARDNER	488,844
694	GRANBY	92,460
252-03	GREATER LAWRENCE SAN DIST	1,440,395
841	GREATER LAWRENCE SAN DIST	8,600
359	GREENFIELD	5,395
861	GROTON	54,629
693	HADLEY	494,720
340	HAVERHILL	59,270

CONSTRUCTION GRANTS PROGRAM
BOND FUND
STATE PAYMENTS TO CITIES, TOWNS, AND DISTRICTS
FOR FISCAL YEAR ENDING JUNE 30, 1988

WPC NO.	GRANTEE	FY 88 STATE PAYMENTS
678	HAVERHILL	13,913
851	HILLCREST SEWER DIST	17,568
278	HINSDALE	15,190
868	HOOSAC WATER QUALITY DIST	31,390
706	HOPKINTON	555,422
420	KINGSTON	44,819
378-02	LEICESTER WATER & SEWER DIST	364,873
625-01	LENOX	38,894
625-02	LENOX	207,800
293	LOWELL	232,450
637	LOWELL	53,353
283	LYNN WATER & SEWER	740,203
283-03	LYNN WATER & SEWER	570,105
850	LYNN WATER & SEWER	522,435
863	LYNN WATER & SEWER	366,933
617	MANCHESTER	29,306
561	MARLBORO	2,573
753	MARLBORO	1,148,873
835	MASHPEE	50,893
740	MATTAPOISETT	1,286
724	MAYNARD	97,591
860	MAYNARD	33,053
563	MEDFIELD	7,328
640	MWRA	188,582
713	MWRA	8,063,587
713-04	MWRA	1,185,693
713-05	MWRA	1,832,278
731	MWRA	707,414
745	MWRA	260,307
305	MIDDLEBORO	151,623
680	MIDDLETON	7,652
309	MILFORD	150,720
821	MILFORD	102,527
811	NATICK	11,832
474-04	NEW BEDFORD	25,747
474-05	NEW BEDFORD	198,568
N76	NEW BEDFORD	12,998
514	NEW BEDFORD	979,194
710	NEW BEDFORD	435,086
595	N. ATTLEBORO	820,145
826	N. BROOKFIELD	17,472
296	NORTHAMPTON	49,481
748-01	NORTHBRIDGE	1,439
704	NORWOOD	68,102
524-03	ORLEANS	858,579
279	PALMER	43,350
822	PITTSFIELD	1,680,840
626	PLAINVILLE	334,822
554	PLYMOUTH	188,677
406	QUINCY	31,544

CONSTRUCTION GRANTS PROGRAM
BOND FUND
STATE PAYMENTS TO CITIES, TOWNS, AND DISTRICTS
FOR FISCAL YEAR ENDING JUNE 30, 1988

WPC NO.	GRANTEE	FY 88 STATE PAYMENTS
696	QUINCY	92,617
521	REVERE	20,771
471	ROCKLAND	245,092
394	ROCKPORT	13,600
656	ROCKPORT	40,750
795	RUSSELL	1,485
454	SALISBURY	1,138,019
499-04	SAUGUS	1,098,217
663	SOMERSET	2,883,323
674	SOUTHBRIDGE	119,775
456-03	SESD	184,518
843	SESD	121,002
298	S. HADLEY	115,216
818	S. HADLEY	25,593
367	SPENCER	1,318,447
840	SPRINGFIELD	401,522
431	STOCKBRIDGE	45,141
681	STONEHAM	52,219
849	SWAMPSCOTT	27,236
743-01	TAUNTON	273
455	TEWKSBURY	376,283
486	TISBURY	22,301
756	UPPER BLACKSTONE	12,423
847	UPPER BLACKSTONE	112,975
796	WAKEFIELD	15,982
867	WARE	11,383
568	WAREHAM	167,267
679	WAREHAM	215,247
551	WARREN	58,620
689	WEBSTER	1,640
709	WEBSTER	704,347
723	WELLFLEET	482,986
448	WESTBORO	357,982
448-04	WESTBORO	101,333
331-03	WESTFIELD	83,712
664	WESTMINSTER	11,764
326	WESTON	2,747
665	WHITMAN	751,858
747-01	WINCHESTER	1,474
687	WINTHROP	227,355
347	WORCESTER	127,621
347-05	WORCESTER	15,844
347-06	WORCESTER	713,621
347-07	WORCESTER	527,174
442	WORCESTER	191,227
830	WORCESTER	2,685
848	WRENTHAM	110,996
477	YARMOUTH	149,732
		55,823,673

DIVISION OF WATER POLLUTION CONTROL
WASTEWATER TREATMENT FACILITIES CONSTRUCTION PROGRAM
STATE GRANT PROGRAM
SUMMARY OF CONSTRUCTION GRANTS AS OF JUNE 30, 1988

WPC NO.	NAME OF APPLICANT	FISCAL YEAR	PROJECT	STATUS	TOTAL ELIGIBLE COST	STATE GRANT PERCENTAGE	STATE GRANT AMOUNT
483	Abington	1981	CS	Complete	1,242,025	15%	186,304
475	Acushnet	1985	PS-FM		1,804,421	17%	305,385
79-2	Adams	1980	T-MOD	Complete	438,704	90%	394,834
169	Adams	1968	T-P-INT-FM	Complete	3,446,912	25%	866,728
282	Agawam	1975	P-FM	Complete	1,037,309	15%	155,596
73-1	Agawam	1972	INT-P	Complete	790,000	90%	711,000
220	Agawam	1971	P-EGU	Complete	37,732	25%	9,433
374	Agawam	1977	P-FM-INT	Complete	1,775,509	15%	266,326
639-02	Amesbury	1981	SEWER REHAB	Complete	393,573	15%	59,036
692	Amesbury	1980	INT	Complete	185,474	15%	27,821
555	Amesbury	1977	P-FM-INT	Complete	1,527,876	15%	229,181
452	Amesbury	1977	INT-P-FM	Complete	2,044,337	15%	306,651
244	Amesbury	1979	T-PS-FM-INT-OUT	Complete	2,699,300	35%	944,755
517	Amherst	1977	P	Complete	335,214	15%	50,282
333	Amherst	1976	INT	Complete	816,870	15%	122,531

WPC NO.	NAME OF APPLICANT	FISCAL YEAR	PROJECT	STATUS	TOTAL ELIGIBLE COST	STATE GRANT PERCENTAGE	STATE GRANT AMOUNT
272	Amherst	1974	P-OUT	Complete	12,754,066	15%	1,913,110
73-2	Amherst	1972	P-FM	Complete	614,780	90%	553,302
526	Ashfield	1984	INT-PS		1,069,391	15%	163,381
362	Athol	1983	T-MOD		3,971,453	17%	576,184
193	Athol	1970	T-P-FM-INT-OUT	Complete	1,232,965	25%	308,241
295	Attleboro	1977	T-P-PS-FM-INT-CS		30,813,776	15%	4,659,191
531	Auburn	1977	GS-FM-ES	Complete	4,512,594	15%	676,889
380	Auburn	1977	PS-ES	Complete	5,110,266	15%	766,540
211	Auburn	1971	PS-FM-INT	Complete	1,861,652	25%	465,413
323	Ayer	1979	T-INT-PS-FM-LS		15,229,585	15%	2,284,438
195	Ayer	1969	T-MOD	Complete	59,873	25%	14,968
424	Barnstable	1978	T-MOD		15,652,589	15%	2,574,215
178	Barnstable	1968	T-MOD	Complete	256,276	25%	64,069
316	Barre	1986	T-INT-PS-FM		8,019,698	55%	4,142,684
207	Bedford	1971	PS-FM	Complete	1,044,464	25%	261,116
387	Bedford	1982	SEWER REHAB	Complete	200,417	15%	30,063
437	Belchertown	1977	T	Complete	328,357	15%	49,254
443	Bellingham	1988	INT		766,724	55%	421,698
396	Beverly	1982	INT-PS-FM-S		7,923,538	15%	1,188,531

WPC NO.	NAME OF APPLICANT	FISCAL YEAR	PROJECT	STATUS	TOTAL ELIGIBLE COST	STATE GRANT PERCENTAGE	STATE GRANT AMOUNT
396-06	Beverly	1988	INT		1,100,612	55%	605,337
81-1	Billerica	1982	PS-SRS		613,000	82%	500,000
657	Billerica	1987	INT-T Rehab		12,271,485	55%	6,194,915
248	Billerica	1973	T-MOD	Complete	1,632,160	35%	571,256
171	Billerica	1969	PS-FM	Complete	458,972	25%	114,743
388	Billerica	1977	INT-FM-PS-LS	Complete	7,312,236	15%	1,096,835
299	Blackstone	1981	LS-PS-INT	Complete	2,039,978	15%	305,997
B-41	Boston W. & S.C.	1982	INT	Complete	2,406,789	15%	361,018
B-34	Boston W. & S.C.	1982	INT	Complete	6,024,046	15%	903,607
B-35	Boston W. & S.C.	1983	INT		26,886,895	15%	4,033,034
341-06	Boston W. & S.C.	1985	INT		6,987,482	15%	1,048,122
341-07	Boston W. & S.C.	1986	INT		3,148,770	15%	472,316
341-09	Boston W. & S.C.	1987	INT		11,772,539	55%	6,474,891
510-03	Boston W. & S.C.	1978	SEWER SEP		11,495,626	15%	1,724,344
510-02	Boston W. & S.C.	1978	SEWER SEP	Complete	8,288,009	15%	1,243,201
509	Boston W. & S.C.	1978	SEWER SEP		4,474,169	15%	671,125
630	Boston W. & S.C.	1987	INT		12,137,756	48%	5,690,426
630-03	Boston W. & S.C.	1988	SEWER SEP		10,451,951	55%	5,748,573
791	Boston W. & S.C.	1985	LS		670,426		94,657

WPC NO.	NAME OF APPLICANT	FISCAL YEAR	PROJECT	STATUS	TOTAL ELIGIBLE COST	STATE GRANT PERCENTAGE	STATE GRANT AMOUNT
159	Braintree	1969	INT	Complete	97,659	27%	29,368
516	Bridgewater	1986	T		9,343,747	30%	2,942,918
156	Brockton	1968	INT	Complete	448,128	30%	134,438
308	Brockton	1977	T-MOD		50,170,045	15%	5,712,472
230	Buckland	1972	T-INT-OUT	Complete	659,363	35%	230,777
489	Buckland	1982	SEWER REHAB	Complete	76,880	15%	11,532
695	Cambridge	1980	SEWER SEP	Complete	1,992,234	15%	298,835
534	Cambridge	1978	SEWER SEP	Complete	1,685,784	15%	252,869
533	Cambridge	1978	SEWER SEP	Complete	390,394	15%	58,559
350	Cambridge	1977	SEWER SEP	Complete	459,653	15%	68,948
351	Cambridge	1977	SEWER SEP	Complete	3,366,911	15%	505,037
297	Charles River P.C.D.	1977	T	Complete	21,028,105	15%	3,154,216
467	Charles River P.C.D.	1984	INT	Complete	877,585	19%	174,708
746	Charles River P.C.D.	1986	INT		2,967,929	35%	1,071,930
200	Chatham	1970	T-PS-FM	Complete	1,148,050	25%	387,920
328	Chelmsford	1987	PS		3,016,801	35%	1,677,762
239	Chicopee	1972	PS-FM-INT	Complete	638,334	35%	223,417
104	Chicopee	1968	T-OUT-INT	Complete	4,066,567	30%	1,219,970
74-5	Chicopee	1978	INT-PS-T-MOD		15,053,966	90%	13,548,569

WPC NO.	NAME OF APPLICANT	FISCAL YEAR	PROJECT	STATUS	TOTAL ELIGIBLE COST	STATE GRANT PERCENTAGE	STATE GRANT AMOUNT
649	Clinton	1981	SEWER REHAB.	Complete	157,571	19%	30,757
170	Cohasset	1968	T-INT	Complete	497,377	25%	124,344
166	Concord	1970	T-MOD	Complete	61,928	25%	15,482
671	Concord	1984	T		13,892,661	17%	2,403,555
165	Dartmouth	1968	T-PS-INT	Complete	4,887,576	25%	1,121,894
423	Dartmouth	1977	CS-LS	Complete	6,395,642	15%	959,346
79-4	Deerfield	1980	T-MOD	Complete	649,417	77%	500,000
197	Deerfield	1970	T	Complete	1,443,276	25%	360,819
480	Dighton	1980	CS	Complete	2,002,844	15%	300,427
245	Douglas	1973	T-INT	Complete	892,723	35%	312,453
519	Dracut	1978	INT-LS-PS-FM	Complete	9,723,497	15%	1,458,525
185	Dudley	1969	INT-PS-FM-T MOD	Complete	990,727	25%	247,682
688	Dudley	1987	INT		263,036	35%	96,479
588	Duxbury	1978	CS		730,100	15%	109,515
174	Easthampton	1968	INT-PS-FM-T	Complete	4,422,000	25%	1,105,500
79-1	Easthampton	1980	SLUDGE PROC-MOD		550,000	90%	495,000
155	East Longmeadow	1969	INT	Complete	202,890	30%	60,867
372	East Longmeadow	1977	PS-CS	Complete	757,857	15%	113,676

WPC NO.	NAME OF APPLICANT	FISCAL YEAR	PROJECT	STATUS	TOTAL ELIGIBLE COST	STATE GRANT PERCENTAGE	STATE GRANT AMOUNT
205	East Longmeadow	1971	PS-FM-INT	Complete	162,306	25%	40,576
558	Edgartown	1978	GS-PS-FM	Complete	463,207	15%	69,481
228	Edgartown	1972	PS-FM-INT-T	Complete	1,286,089	35%	450,131
490	Erving	1978	SEWER SEP	Complete	306,884	15%	46,033
262	Erving	1974	T	Complete	2,008,311	15%	301,247
301	Erving	1975	T	Complete	4,540,908	15%	681,136
186	Fairhaven	1968	T	Complete	5,491,748	25%	1,372,937
315	Fairhaven	1977	PS-FM-INT-LS	Complete	4,381,143	15%	657,171
635	Fairhaven	1987	T		12,080,119	35%	6,185,769
184	Fall River	1969	T-MOD	Complete	1,915,781	25%	478,945
224	Fall River	1972	PS-FM-INT	Complete	212,020	25%	53,005
481	Fall River	1977	T		36,225,413	14%	5,168,675
515	Fall River	1977	PS REHAB-SEWER SEP	Complete	8,276,949	15%	1,241,542
325	Falmouth	1984	PS-INT-FM		20,240,383	13%	2,556,571
227	Fitchburg	1970	T	Complete	12,546,827	15%	1,882,024
234	Fitchburg	1970	T		11,989,000	35%	4,196,150
257	Fitchburg	1974	INT	Complete	1,344,222	15%	201,633
658	Foxborough	1986	INT		2,305,182	35%	775,526

WPC NO.	NAME OF APPLICANT	FISCAL YEAR	PROJECT	STATUS	TOTAL ELIGIBLE COST	STATE GRANT PERCENTAGE	STATE GRANT AMOUNT
213	Framingham	1971	INT-PS-FM	Complete	3,071,324	25%	767,831
573	Franklin	1977	LS	Complete	4,352,366	15%	652,885
611	Franklin	1984	SEWER REHAB	Complete	82,843	17%	13,788
673	Gardner	1980	INT-GS	Complete	718,768	15%	107,815
329	Gardner	1982	INT		18,488,825	15%	2,769,113
223	Gardner	1971	INT-T-MOD	Complete	2,056,329	25%	514,082
317	Gill	1978	LS-INT-PS-FM	Complete	1,352,735	15%	202,910
78-1	Gloucester	1978	T		18,225,322	90%	16,402,790
600	Gloucester	1982	INT-GS-PS-FM	Complete	348,896	15%	52,334
599	Gloucester	1982	GS-PS-FM	Complete	782,136	15%	117,320
271	Grafton	1975	T-INT-PS-FM-CS	Complete	11,999,024	15%	1,799,854
236	Great Barrington	1972	T-PS-FM-INT	Complete	4,473,400	35%	1,565,690
487	Great Barrington	1982	SEWER SEP	Complete	1,844,977	15%	276,747
273	Greater Lawrence S.D.	1971	INT	Complete	6,723,081	15%	1,008,462
252	Greater Lawrence S.D.	1971	T-PS-FM-INT		56,713,845	15%	7,861,368
252-03	Greater Lawrence S.D.	1987	T		6,541,195	55%	3,449,438
152	Greenfield	1969	T-PS-FM-INT	Complete	525,450	30%	157,635
238	Greenfield	1972	T	Complete	2,954,895	35%	1,007,871
359	Greenfield	1982	INT	Complete	4,242,476	15%	636,371

WPC NO.	NAME OF APPLICANT	FISCAL YEAR	PROJECT	STATUS	TOTAL ELIGIBLE COST	STATE GRANT PERCENTAGE	STATE GRANT AMOUNT
286	Groveland	1977	PS-FM-INT	Complete	2,717,919	15%	407,688
369	Hadley	1978	PS-FM-GS	Complete	2,460,664	15%	369,100
693	Hadley	1986	INT-PS		2,717,132	35%	926,060
240	Hardwick	1973	T-PS-FM-INT-OUT	Complete	1,368,885	35%	479,109
318	Hardwick	1977	T-PS-FM-CS	Complete	680,887	15%	102,133
285	Hatfield	1984	PS-T		7,472,637	15%	1,113,828
340	Haverhill	1982	INT		3,746,993	15%	562,049
339	Haverhill	1977	INT	Complete	418,733	15%	62,810
274	Haverhill	1973	INT	Complete	8,195,518	15%	1,229,327
266	Haverhill	1972	T-INT-PS-FM	Complete	19,562,580	15%	2,934,387
158	Hingham	1969	PS-FM	Complete	97,154	27%	26,231
278	Hinsdale	1975	INT	Complete	1,031,785	15%	154,768
H-59	Holbrook	1982	INT-LS-PS-FM	Complete	406,843	15%	61,026
275	Holbrook	1975	INT	Complete	2,269,198	15%	340,380
590	Holbrook	1979	INT-PS-LS-FM	Complete	394,009	19%	75,000
368	Holyoke	1978	PS-FM	Complete	1,344,171	15%	201,626
173	Holyoke	1968	INT-PS-FM	Complete	313,039	25%	78,260
75-01	Holyoke	1975	T		24,265,397	90%	21,838,857
74-06	Holyoke	1975	INT-PS-FM	Complete	1,403,295	90%	1,262,966

WPC NO.	NAME OF APPLICANT	FISCAL YEAR	PROJECT	STATUS	TOTAL ELIGIBLE COST	STATE GRANT PERCENTAGE	STATE GRANT AMOUNT
80-1	Hoosac W.Q.D.	1980	SEWER REHAB	Complete	425,172	90%	382,655
83-1	Hoosac W.Q.D.	1983	SLUDGE PROC EQUIP	Complete	600,000	83%	500,000
237	Hoosac W.Q.D.	1973	INT	Complete	691,902	35%	242,166
74-4	Hoosac W.Q.D.	1978	T	Complete	7,244,318	90%	6,519,886
294	Hopedale	1982	T-INT-LS-PS-FM	Complete	7,858,250	15%	1,156,096
706	Hopkinton	1987	PS-FM-GS		4,109,606	55%	2,227,936
215	Hudson	1971	PS-FM-INT	Complete	777,928	25%	194,482
338	Hudson	1984	T		13,803,740	15%	2,001,653
579	Hull	1977	PS-FM-CS	Complete	2,597,861	15%	389,679
300	Hull	1973	T-OUT-INT-PS-FM		12,928,000	15%	1,939,200
319	Huntington	1976	T-INT	Complete	1,328,769	15%	199,315
160	Ipswich	1968	T-INT	Complete	64,697	30%	19,409
256	Ipswich	1972	T-MOD-PS	Complete	4,255,180	15%	638,277
324	Lancaster S.D.	1978	CS-INT-PS-FM	Complete	2,340,553	15%	351,083
355	Lee	1977	INT	Complete	108,509	15%	16,276
330	Lee	1977	LS-PS-FM	Complete	5,107,292	15%	766,094
148	Lee	1969	T	Complete	727,627	30%	218,288
111	Leicester	1969	T	Complete	234,508	30%	70,352

WPC NO.	NAME OF APPLICANT	FISCAL YEAR	PROJECT	STATUS	TOTAL ELIGIBLE COST	STATE GRANT PERCENTAGE	STATE GRANT AMOUNT
378-02	Leicester	1986	T		3,097,764	30%	872,088
320	Lenox	1978	PS-FM	Complete	1,051,865	15%	157,780
625	Lenox	1982	SLUDGE PROC EQUIP	Complete	483,350	15%	72,503
625-02	Lenox	1987	INT-I/I		945,006	55%	497,769
188	Lenox	1969	T-INT	Complete	1,013,075	25%	253,269
336	Leominster	1978	T-INT		24,615,197	15%	3,905,293
214	Leominster	1971	T-MOD	Complete	126,943	25%	31,736
142	Lexington	1969	FM	Complete	268,763	27%	72,566
217	Lexington	1971	PS-ADD	Complete	592,665	25%	148,166
74-2	Lexington	1974	INT	Complete	40,595	90%	36,536
281	Longmeadow	1975	PS	Complete	1,060,793	15%	159,119
375	Longmeadow	1981	INT	Complete	1,848,796	15%	277,319
251	Lowell	1973	SITE PREP	Complete	1,221,721	35%	427,602
284	Lowell	1971	T-INT		49,489,000	15%	7,423,350
637	Lowell	1982	INT		17,644,793	15%	2,646,719
293	Lowell	1977	INT		24,815,015	15%	3,722,252
259	Ludlow	1978	INT		736,235	15%	110,435
366	Ludlow	1977	INT-LS	Complete	3,480,521	15%	522,078

WPC NO.	NAME OF APPLICANT	FISCAL YEAR	PROJECT	STATUS	TOTAL ELIGIBLE COST	STATE GRANT PERCENTAGE	STATE GRANT AMOUNT
283	Lynn	1978	T		62,672,295	15%	8,816,820
283-03	Lynn	1988	T		53,910,957	55%	29,651,026
404	Malden	1978	INT	Complete	1,292,059	15%	193,809
198	Manchester	1970	T	Complete	604,702	25%	151,176
398	Manchester	1977	LS	Complete	780,429	15%	117,064
345	Mansfield	1979	T-INT-OUT		30,674,767	15%	4,601,215
154	Mansfield	1968	T-ADD	Complete	558,365	25%	139,591
202	Marion	1970	T	Complete	1,042,000	25%	260,500
561	Marlborough	1978	LS-SEWER EXT	Complete	691,731	15%	103,760
753-01	Marlborough	1987	T REHAB		15,572,770	47%	7,291,386
384	Marlborough	1977	INT	Complete	720,608	15%	108,091
182	Marlborough	1969	T-INT	Complete	2,015,800	25%	503,950
221	Marlborough	1971	T	Complete	8,518,061	25%	2,129,515
470	Marshfield	1981	T-OUT-INT-PS-FM		20,718,862	15%	3,145,895
311	Mattapoisett	1977	PS	Complete	1,911,706	15%	286,756
724	Maynard	1982	T-MOD-S IMP	Complete	5,658,097	15%	848,715
247	Maynard	1971	T-MOD	Complete	2,009,040	35%	703,164
249	Medfield	1971	T-OUT-PS-INT	Complete	3,379,868	35%	1,182,954
410	Medfield	1977	INT-CS	Complete	3,813,892	15%	572,084

WPC NO.	NAME OF APPLICANT	FISCAL YEAR	PROJECT	STATUS	TOTAL ELIGIBLE COST	STATE GRANT PERCENTAGE	STATE GRANT AMOUNT
411	Medway	1977	CS	Complete	1,045,083	15%	156,762
523	Medway	1977	INT-CS	Complete	2,998,017	15%	449,703
503	Melrose	1977	INT-PS-REHAB	Complete	2,148,765	15%	322,315
453	Merrimac	1978	T-CS	Complete	6,896,389	15%	1,034,458
393	Methuen	1978	INT-LS-PS-FM		11,063,692	15%	1,617,704
459	MWRA - Fore River	1978	FORE RIVER SYPHON	Complete	4,035,006	15%	605,251
312	MWRA - Charles River	1976	INT		22,793,500	15%	3,419,025
529	MWRA - Rutland/Holden	1980	RELIEF SEWER	Complete	3,638,166	15%	545,725
196	MWRA - Malden RS	1970	INT	Complete	1,990,160	25%	497,540
226	MWRA - No. Charles	1972	INT	Complete	11,359,381	25%	2,839,845
670	MWRA -	1981	FACILITIES PLAN		7,124,432	15%	1,030,114
655	MWRA - Milbrook Valley	1984	RELIEF SEWER		7,179,610	15%	1,076,942
713	MWRA - Deer Island	1985	FACILITIES PLAN		39,720,542	65%	14,821,163
713-03	MWRA - Deer Island	1987	T		2,224,746	55%	1,088,868
177	MWRA - Millbrook	1968	INT	Complete	763,411	25%	190,853
713-05	MWRA - Deer Island	1987	T		13,134,099	55%	6,556,845
68-1	MWRA - Deer Island	1969	ADMIN & GARAGE BLDGS	Complete	577,829	60%	346,697
713-04	MWRA	1987	T		23,897,690	55%	11,970,503

WPC NO.	NAME OF APPLICANT	FISCAL YEAR	PROJECT	STATUS	TOTAL ELIGIBLE COST	STATE GRANT PERCENTAGE	STATE GRANT AMOUNT
161	MWRA - Deer Island	1969	WINTHROP TERM FAC	Complete	2,588,700	27%	698,949
181	MWRA - No. Charles	1968	INT	Complete	1,322,116	25%	330,529
640	MWRA - Fox Point	1985	T		5,739,669	15%	833,437
640-03	MWRA	1986	T		5,159,227	35%	1,723,687
192	MWRA - Squantum	1969	FM	Complete	2,435,659	25%	608,915
731	MWRA-East Boston	1986	PS		31,076,794	35%	10,645,199
643-02	MWRA - Constitution Beach	1985	CS		2,879,312	15%	421,596
789	MWRA-Charlestown	1986	PS		14,126,177	35%	4,809,428
305	Middleborough	1975	T	Complete	5,864,778	15%	879,717
172	Millbury	1968	T-INT	Complete	2,183,215	25%	545,804
309	Milford	1980	T		19,766,385	15%	2,964,958
465	Millis	1984	INT-PS		4,019,217	15%	602,883
206	Monroe	1971	T-PS-OUT	Complete	127,475	25%	31,869
332	Monson	1977	PS-INT-FM	Complete	8,486,655	15%	1,272,998
276	Montague	1975	INT & FLOW METER STA	Complete	94,581	15%	14,187
751	Montague	1984	INT-CS	Complete	555,378	16%	90,891
321	Montague	1977	PS-FM-INT-T/MOD	Complete	8,413,004	15%	1,261,951
708	Montague	1984	CS		1,974,826	15%	303,354

WPC NO.	NAME OF APPLICANT	FISCAL YEAR	PROJECT	STATUS	TOTAL ELIGIBLE COST	STATE GRANT PERCENTAGE	STATE GRANT AMOUNT
310	Nahant	1978	INT	Complete	4,347,880	15%	652,182
473	Nantucket	1981	T-PS-FM		10,127,170	11%	1,160,077
199	New Bedford	1970	T-PS-OUT-SLUDGE INCIN	Complete	7,398,597	25%	1,849,649
474	New Bedford	1981	INT	Complete	4,196,039	15%	629,406
474-04	New Bedford	1983	PS-REHAB-FM		1,702,636	15%	255,395
474-05	New Bedford	1986	T		1,015,569	30%	311,608
N-74	New Bedford	1982	PS-REHAB-FM	Complete	3,166,119	15%	474,918
307	Newburyport	1977	T		17,031,890	15%	2,554,783
391	Newburyport	1977	PS-FM-INT-LS-SD	Complete	2,565,273	15%	384,791
296	Northampton	1977	T-INT-CS		27,237,400	15%	4,085,610
280	North Attleboro	1977	T-INT-CS-PS	Complete	16,580,905	15%	2,487,136
595	North Attleboro	1987	INT-T		5,965,277	55%	3,235,147
447	Northborough	1977	PS-FM-INT-LS	Complete	5,967,234	15%	895,085
225	Northbridge	1972	T-ADD-INT-PS-FM	Complete	1,653,310	25%	413,328
382	Northbridge	1978	LS-INT	Complete	1,296,444	15%	194,467
208	North Brookfield	1971	T-INT	Complete	399,208	25%	99,802
203	Northfield	1971	T-INT	Complete	536,290	25%	134,072
698	Orange	1982	SEWER REHAB	Complete	493,877	15%	74,082

WPC NO.	NAME OF APPLICANT	FISCAL YEAR	PROJECT	STATUS	TOTAL ELIGIBLE COST	STATE GRANT PERCENTAGE	STATE GRANT AMOUNT
270	Orange	1975	INT-SITE PREP	Complete	2,897,255	15%	434,588
524-03	Orleans	1986	T		13,241,050	20%	3,029,167
379	Oxford-Rochdale S.D.	1977	CS-INT-STOR-BLDG	Complete	1,421,359	15%	213,204
246	Oxford-Rochdale S.D.	1975	T-INT-OUT	Complete	772,564	35%	270,397
279	Palmer	1976	T	Complete	17,712,453	15%	2,656,868
596	Peabody	1978	LS-CS-INT-PS-FM-ES	Complete	8,972,309	15%	1,345,846
397	Peabody	1977	CS-INT	Complete	3,922,884	15%	588,433
277	Peabody	1975	PS	Complete	3,755,131	15%	563,270
287	Pepperell	1976	PS-INT	Complete	4,226,721	15%	634,008
157	Pittsfield	1968	T-PS	Complete	115,850	30%	34,755
175	Pittsfield	1968	INT	Complete	640,269	25%	160,067
74-3	Pittsfield	1977	T-MOD	Complete	12,047,098	90%	10,842,388
822	Pittsfield	1987	T		8,963,229	55%	4,440,163
428	Plainville	1978	CS	Complete	2,490,226	15%	373,534
626	Plainville	1987			984,445	55%	568,982
162	Plymouth	1969	T-INT-PS-OUT	Complete	3,077,000	25%	769,250
406	Quincy	1979	PS-FM-INT	Complete	2,882,534	15%	432,380
696	Quincy	1986	PS		1,430,057	35%	602,155

WPC NO.	NAME OF APPLICANT	FISCAL YEAR	PROJECT	STATUS	TOTAL ELIGIBLE COST	STATE GRANT PERCENTAGE	STATE GRANT AMOUNT
416	Randolph	1977	INT-CS-PS-FM	Complete	6,130,799	15%	919,620
303	Raynham	1975	INT	Complete	1,000,194	15%	150,029
163	Reading	1968	INT	Complete	839,277	27%	226,605
401	Reading	1977	PS-FM-INT-CS	Complete	1,542,412	15%	231,362
521	Revere	1982	SYSTEM REHAB.	Complete	1,182,265	15%	177,340
471	Rockland	1981	T MOD-CS		13,392,977	15%	2,008,946
394	Rockport	1977	PS	Complete	5,793,760	15%	869,064
255	Rockport	1972	T-OUT-PS-FM-INT	Complete	3,449,985	15%	517,498
656	Rockport	1981	SLUDGE PROC FAC	Complete	2,861,169	15%	429,175
229	Royalston	1972	T-INT	Complete	243,551	35%	85,242
652	Salem	1981	INT	Complete	2,319,438	15%	347,916
400	Salem	1978	INT-LS-PS-FM	Complete	4,509,065	15%	676,360
399	Salem	1977	INT	Complete	3,295,658	15%	494,349
499	Saugus	1980	INT-FM-PS MOD		8,564,166	15%	1,284,625
499-4	Saugus	1987	INT-FM-PS-MOD		4,146,750	55%	2,280,712
454	Salisbury	1986	T-PS-INT		13,181,647	30%	3,983,122
69-1	Scituate	1969	FP	Complete	13,127	60%	7,876
469	Scituate	1982	PS-FM-INT- SLUDE FAC.		4,391,278	13%	571,901

WPC NO.	NAME OF APPLICANT	FISCAL YEAR	PROJECT	STATUS	TOTAL ELIGIBLE COST	STATE GRANT PERCENTAGE	STATE GRANT AMOUNT
231	Shelburne	1972	PS-FM-INT	Complete	164,051	35%	57,418
488	Shelburne	1982	S REHAB-S SEP	Complete	69,639	15%	10,446
446	Shrewsbury	1984	RS		764,606	14%	104,458
74-1	Shrewsbury	1974	GRIT FAC.	Complete	157,994	90%	142,194
164	Somerset	1969	T-OUT-PS-FM-INT	Complete	4,865,900	25%	1,216,475
425	Somerset	1977	CS-LS-PS-FM-ES	Complete	3,309,152	15%	496,373
663	Somerset	1987			12,558,527	55%	6,456,887
179	Southbridge	1969	T-PS-INT	Complete	1,923,594	25%	480,899
674	Southbridge	1985	SEWERS		21,389,435	15%	3,038,019
737	South Essex S.D.	1982	INC-ASH-DETOX	Complete	468,171	15%	46,337
456	South Essex S.D.	1979	INT		13,169,757	15%	1,975,464
456-03	South Essex S.D.	1986	FM		5,732,600	15%	859,890
456-04	South Essex S.D.	1987			11,711,323	55%	6,441,228
456-05	South Essex S.D.	1988	INT		8,300,124	55%	4,565,068
241	South Essex S.D.	1971	T		26,500,000	25%	6,625,000
222(R)	South Essex S.D.	1970	INT-PS	Complete	11,021,000	25%	2,755,250
288	South Essex S.D.	1976	INT		7,000,000	15%	1,050,000
298	South Hadley	1976	T	Complete	11,077,998	15%	1,661,700
194	Spencer	1969	T-INT	Complete	1,286,402	25%	321,601

WPC NO.	NAME OF APPLICANT	FISCAL YEAR	PROJECT	STATUS	TOTAL ELIGIBLE COST	STATE GRANT PERCENTAGE	STATE GRANT AMOUNT
367	Spencer	1987			7,141,128	55%	3,922,597
258	Springfield	1972	T		52,533,000	15%	7,882,950
431	Stockbridge	1984	T-PS-INT-LS		6,605,792	15%	984,122
681	Stoneham	1983	STORM DRAINS		1,556,743	35%	313,941
418	Stoughton	1977	CS	Complete	1,205,329	15%	180,799
189	Sturbridge	1969	T-PS-INT	Complete	1,138,649	25%	284,662
376	Sturbridge	1982	T MOD-S REHAB	Complete	1,254,721	15%	185,660
250	Sunderland	1973	T-INT-PS-FM	Complete	1,381,834	35%	483,642
290	Sutton	1977	PS-INT-LS	Complete	887,723	15%	133,158
210	Swampscott	1971	T-PS	Complete	3,276,047	25%	819,012
302	Taunton	1975	T MOD	Complete	15,818,423	15%	2,372,763
479	Taunton	1982	PS-FM	Complete	1,757,335	15%	263,600
168	Taunton	1968	PS-INT	Complete	1,558,004	25%	389,501
538	Templeton	1978	PS-FM-INT	Complete	3,678,426	15%	551,764
306	Templeton	1976	T	Complete	7,540,167	15%	1,131,025
455	Tewksbury	1978	PS-FM-INT-LS	Complete	16,662,503	15%	2,499,375
549	Tyngsborough	1980	PS-FM-INT-LS	Complete	2,262,035	15%	339,205
253	Upper Blackstone W.P.A.D.	1970	T	Complete	23,296,410	15%	3,494,462
212	Upper Blackstone W.P.A.D.	1971	FM	Complete	66,526	25%	16,632

WPC NO.	NAME OF APPLICANT	FISCAL YEAR	PROJECT	STATUS	TOTAL ELIGIBLE COST	STATE GRANT PERCENTAGE	STATE GRANT AMOUNT
204	Upton	1970	T-INT	Complete	1,069,590	25%	267,398
383	Upton	1976	INT-PS-FM-LS	Complete	1,482,203	15%	222,330
541	Upton	1977	LS	Complete	406,476	15%	60,971
289	Uxbridge	1976	T	Complete	10,306,593	15%	1,545,989
539	Wakefield	1978	FM-PS MOD	Complete	1,377,397	15%	206,610
190	Wakefield	1969	PS	Complete	485,621	25%	121,405
415	Walpole	1984	INT-FM-LS		6,651,050	15%	982,658
343-03	Waltham	1979	INT	Complete	6,121,480	15%	918,222
343	Waltham	1977	INT-PS-FM	Complete	4,493,871	15%	674,081
79-3	Ware	1980	T-INT	Complete	3,210,033	90%	2,889,030
568	Wareham	1978	LS-INT-PS	Complete	5,571,740	15%	835,761
201	Wareham	1970	T-PS-FM	Complete	3,275,661	25%	818,915
550	Wareham	1979	T MOD	Complete	3,872,028	11.3%	427,676
551	Warren	1982	T-S		3,101,373	15%	465,206
450	Wayland	1982	T		3,497,300	9%	319,183
709	Webster	1988	T		14,168,473	55%	8,010,136
636	Webster	1982	T-P-MOD		3,777,033	15%	566,555
570	Webster	1978	FM-ES	Complete	890,744	15%	133,612
377	Webster	1978	PS-FM-LS-CS	Complete	2,389,882	15%	358,482

WPC NO.	NAME OF APPLICANT	FISCAL YEAR	PROJECT	STATUS	TOTAL ELIGIBLE COST	STATE GRANT PERCENTAGE	STATE GRANT AMOUNT
242	Webster	1971	T&PS	Complete	4,290,295	15%	643,544
598	Wellesley	1982	INT-LS	Complete	2,709,609	15%	406,441
269	Wellesley	1975	PS-ADD	Complete	915,990	15%	137,398
774	Westborough	1984	INT		1,033,337	15%	155,001
183	Westborough	1969	T-INT	Complete	1,532,371	25%	383,093
448	Westborough	1984	T		28,799,369	15%	3,828,202
448-04	Westborough	1987	T		4,719,996	55%	2,414,750
346	Westfield	1978	SEWER SEP	Complete	321,242	15%	48,186
331	Westfield	1985	PS, FM, INT		4,049,301	18%	722,339
331-03	Westfield	1986	INT-FM-PS		2,819,253	35%	870,992
218	Westfield	1969	T-INT	Complete	4,288,006	25%	1,072,002
497	West Springfield	1978	SEWER SEP	Complete	3,317,304	15%	497,596
233	West Springfield	1972	INT-PS-FM	Complete	5,337,117	35%	1,867,990
209	West Springfield	1971	INT-PS-FM	Complete	760,665	25%	190,166
413	Westwood	1977	PS-FM-INT-LS		5,318,038	15%	797,706
419	Weymouth	1977	PS-FM-LS	Complete	2,665,902	15%	399,885
80-2	Weymouth	1981	LS (Project III)	Complete	443,900	75%	332,700
606	Weymouth	1977	PS-FM-LS	Complete	7,906,876	15%	1,186,031
665	Whitman	1986	T		9,750,286	35%	3,276,300

WPC NO.	NAME OF APPLICANT	FISCAL YEAR	PROJECT	STATUS	TOTAL ELIGIBLE COST	STATE GRANT PERCENTAGE	STATE GRANT AMOUNT
540	Wilbraham	1978	INT-SEWER EXT	Complete	4,678,393	15%	701,759
216	Wilbraham	1977	T-PS-FM-OUT	Complete	3,150,132	25%	997,533
699	Wilbraham	1984	INT	Complete	1,080,487	16%	185,168
518	Williamsburg	1978	GS-METERING/CHLORINATION STATION	Complete	2,738,272	15%	410,741
354	Williamstown	1978	INT	Complete	35,905	15%	5,385
187	Williamstown	1971	PS-FM-INT	Complete	365,946	25%	91,486
608	Williamstown	1984	INT		1,078,600	13%	141,587
342	Wilmington	1977	PS-FM-INT-LS		6,927,500	15%	1,039,125
219	Wilmington	1971	INT	Complete	259,733	25%	64,933
254	Winchendon	1973	T-MOD	Complete	1,693,913	35%	592,869
687	Winthrop	1983	SYSTEM REHAB		5,316,950	28%	1,459,932
687-04	Winthrop	1988	INT		2,208,905	55%	1,214,898
153	Woburn	1968	INT	Complete	159,286	30%	47,786
442	Worcester	1978	INT	Complete	6,417,148	15%	962,572
347	Worcester	1978	INT-OVERFLOW ABATE FAC	Complete	7,703,744	15%	1,155,562
348	Worcester	1978	SEWER SEP	Complete	5,637,308	15%	845,596
334	Worcester	1979	INT	Complete	1,190,092	15%	178,514
W-34	Worcester	1982	INT	Complete	4,345,383	15%	651,807

WPC NO.	NAME OF APPLICANT	FISCAL YEAR	PROJECT	STATUS	TOTAL ELIGIBLE COST	STATE GRANT PERCENTAGE	STATE GRANT AMOUNT
W-47	Worcester	1982	SEWER SEP		12,587,400	15%	1,888,110
347-05	Worcester	1983	CS		6,618,364	15%	815,778
347-06	Worcester	1986	INT		7,517,035	15%	1,127,555
347-07	Worcester	1987	PS		2,361,827	55%	1,299,005

PROJECT CODE:

T: Wastewater Treatment Plant
INT: Interceptor Sewer
PS: Pumping Station
ES: Ejector Station
FM: Force Main
I/I Infiltration/Inflow

LS: Lateral Sewer
GS: Gravity Sewer
OUT: Outfall Sewer
EGU: Emergency Generator Unit
CS: Collector Sewer

Division of Water Pollution Control
Collection Systems
Grant Program

Summary of Grant Revisions - Fiscal Year 1988

Grant revisions reflect adjustments due to:

(1) as-bid adjustments
(2) increased grant participation to 50% or $3,000,000
(c. of 1982, c. 167 of 1983 & c. 786 of 1985)
(3) final project closeout

Public Entity	Type of Adjustment (1); (2); (3)	557 Project Number	Grant Adjustment
Abington	3	CS-107	32,482
Acushnet	3	CS-47	(17,221)
Agawam	1	CS-233	242,629
Ashland	3	CS-160	(71,210)
Attleboro	1	CS-104	(48,224)
Barnstable	1	CS-169	74,545
Barre	1	CS-111/280	(74,021)
Bellingham	1	CS-196	(245,896)
Beverly	3	CS-105	(23,042)
Billerica	1	CS-89	118,064
Bridgewater	1	CS-83	(217,634)
Canton	1	CS-144	1,916
Chelmsford	1	CS-219	(455,808)
Chelmsford Center Industrial Sewer District	1	EB-66	(278,916)
Dracut	1	CS-159	(26,085)
Holbrook	3	CS-156	4,350
Hopkinton	1	CS-173	(509,952)
Ipswich	3	CS-182	(31,886)
Lee	1	CS-106	(153,197)
Ludlow	3	CS-81	(41,677)
Manchester	3	CS-217	(1,988)
Mattapoisett	3	CS-187	(9,166)
Methuen	3	CS-25	(174,174)
Millis	1	CS-97	99,900
Monson	1	CS-183	188,645
Montigue	3	CS-164	(8,456)
Norton	1	CS-224	132,573
North Attleborough	1	CS-211	(187,040)
Palmer	1	CS-245	22,512
Peabody	1	EB-59	(68,613)
Pepperell	3	CS-118	13,936
Plainville	1	CS-18	(123,973)
Raynham	1	CS-221	371,797
Shrewsbury	1	CS-222	(14,204)
Southbridge	1	CS-240	9,553

Division of Water Pollution Control
Collection Systems
Grant Program

Summary of Grant Revisions - Fiscal Year 1988

Grant revisions reflect adjustments due to:

(1) as-bid adjustments
(2) increased grant participation to 50% or $3,000,000
(c. of 1982, c. 167 of 1983 & c. 786 of 1985)
(3) final project closeout

Public Entity	Type of Adjustment (1); (2); (3)	557 Project Number		Grant Adjustment
Walpole	3	CS-149		(166,883)
Walpole	1	CS-256		36,600
Warren	3	CS-163		(5,981)
Westfield	1	CS-253		(409,914)
Winchester	3	CS-175		(6,602)
		TOTAL	FY-88	(2,022,261)
	PRIOR YEAR TOTALS			
			FY-81	(1,146,169.)
			FY-82	(3,623,270.)
			FY-83	+ 2,181,095.
			FY-84	(710,106.)
			FY-85	(1,979,207.)
			FY-86	(644,987.)
			FY-87	(1,580,554.)
	TOTALS		END FY-88	(9,525,459.)

Division of Water Pollution Control
Collection Systems
Grant Program

Summary of Grants - Fiscal Year 1988

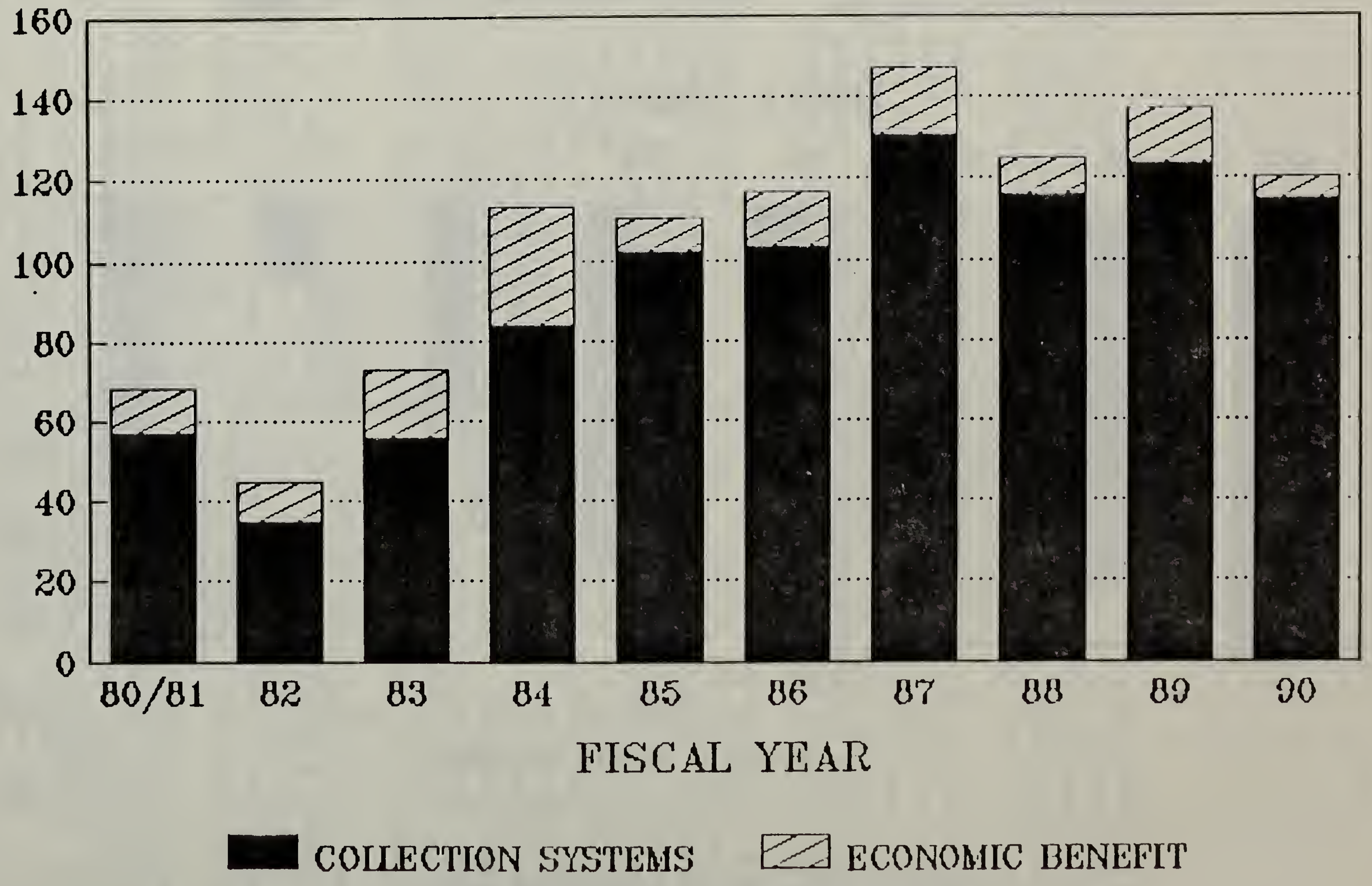
Public Entity	557 Project Number	Grant Award Date	Total Project Cost	Eligible Construction Cost	Grant Amount
Ashland	CS-161	6/24/88	2,000,000	1,501,000	750,500
Ayer	CS-277	6/28/88	1,401,885	892,395	446,198
Bedford	CS-291	6/29/88	2,198,100	1,788,500	894,250
Chelmsford	CS-265	6/29/88	8,115,000	6,333,000	3,000,000
Clarksburg	CS-98	6/30/88	3,000,000	2,730,000	1,365,000
Dalton	CS-261	6/30/88	644,002	501,402	250,701
E. Longmeadow	CS-284	6/30/88	1,093,744	959,904	479,952
Fairhaven	CS-281	6/29/88	2,615,235	1,685,360	842,680
Gloucester	CS-283	6/30/88	6,208,722	4,828,617	2,414,309
Grafton	CS-248	6/27/88	3,753,829	3,392,259	1,696,130
Granby	CS-268	6/29/88	275,075	117,075	58,538
Groton	CS-292	6/13/88	3,134,061	2,573,111	1,286,555
Haverhill	CS-68	6/27/88	2,289,189	1,875,640	937,820
Hingham	CS-285	6/29/88	329,410	272,290	136,145
Holbrook	CS-275	6/30/88	5,192,605	3,837,280	1,918,640
Hull	CS-270A CS-270B	6/29/88	3,955,928	2,519,563	1,259,782
Southbridge	CS-266	6/27/88	177,250	152,250	76,125
Stoneham	CS-38	6/29/88	757,656	589,670	294,835
Stoughton	CS-264	6/29/88	5,198,082	3,589,856	1,794,920
Taunton	CS-135	6/30/88	634,603	533,125	266,562
Tynsborough	CS-213	6/28/88	838,000	569,410	284,705
Wareham	CS-309 310	6/29/88	6,690,455	5,641,357	2,820,680
Whitman	CS-306	6/29/88	7,936,517	7,016,379	3,000,000
		TOTALS	68,439,348	53,899,443	26,275,027
	PRIOR YEAR TOTALS				
		FY-81	49,873,000.	41,639,401.	16,540,504.
		FY-82	17,099,449.	13,975,137.	5,227,361.
		FY-83	31,627,111.	26,722,371.	13,238,430.
		FY-84	54,070,072.	42,084,662.	21,042,363.
		FY-85	42,974,453.	33,039,372.	16,373,790.
		FY-86	70,207,175.	53,556,096.	26,344,336.
		FY-87	53,095,879.	43,903,362.	21,950,682.
	TOTALS END	FY-88	387,386,487.	308,819,844.	146,992,493.

Division of Water Pollution Control
Collection Systems
Grant Program

Summary of Grant Closeouts - Fiscal Year 1988

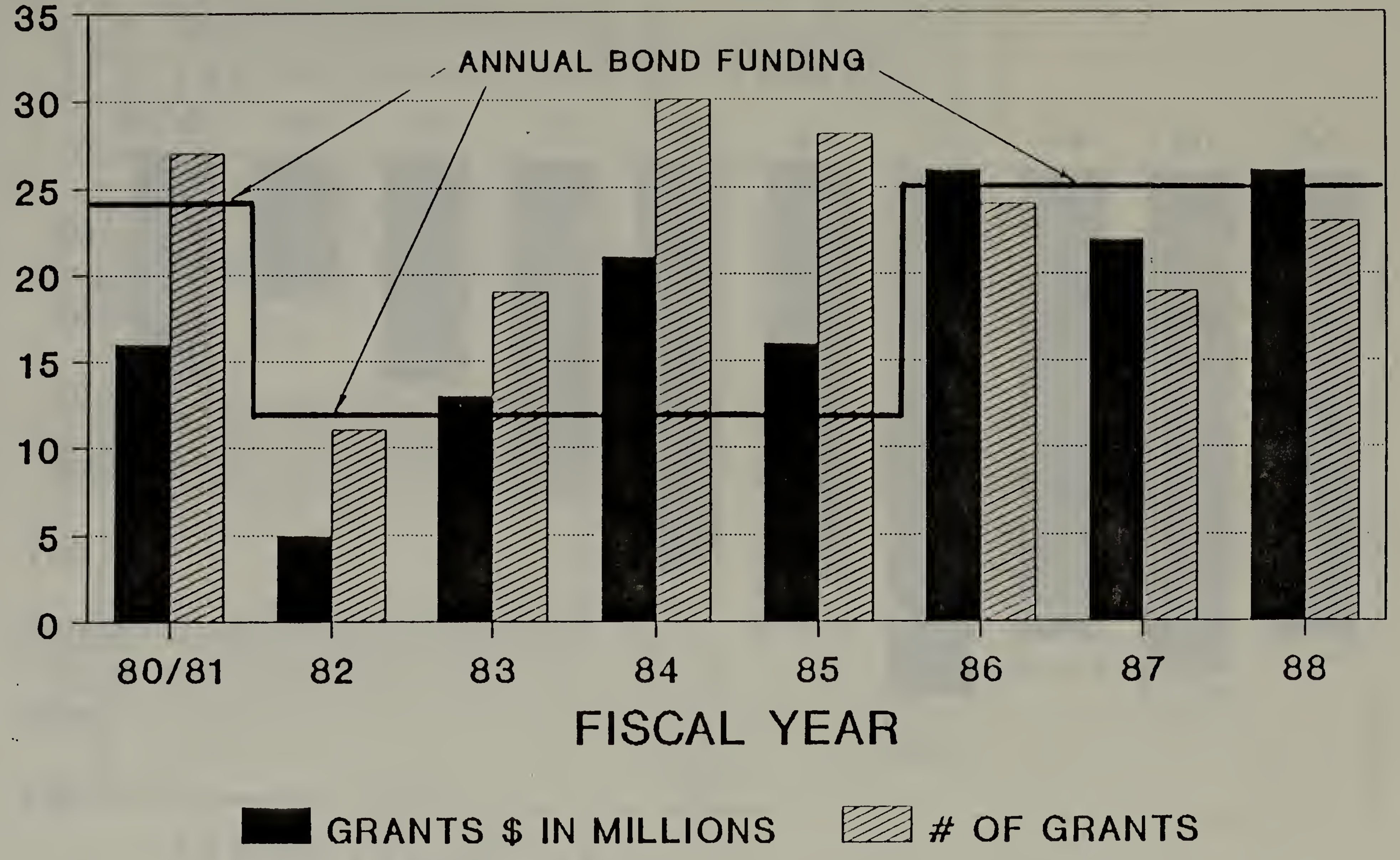
Public Entity	557 Project Number	Grant Award Date	Original Grant Amount	Final Grant Amount	Date Project Completed
Abington	CS-107	12/14/82	2,000,000	1,483,698	3/25/88
Acushnet	CS-47	6/20/83	250,490	188,939	3/07/88
Ashland	CS-160	6/27/84	364,700	339,901	1/20/88
Beverly	CS-105	12/22/81	194,292	157,776	1/20/88
Holbrook	CS-156	6/22/84	40,660	40,831	12/21/87
Ipswich	CS-182	5/29/85	205,351	177,701	10/28/87
Ludlow	CS-81	12/18/81	776,180	687,181	1/20/88
Manchester	CS-217	2/18/86	33,991	34,040	11/05/87
Mattapoisett	CS-187	5/01/86	75,500	63,481	1/06/88
Methuen	CS-25	12/23/82	1,242,940	764,585	1/19/88
Montigue	CS-164	9/14/83	200,225	119,450	10/20/87
Pepperell	CS-118	6/24/83	558,500	488,587	10/22/87
Walpole	CS-149	6/28/84	850,850	776,919	9/24/87
Warren	CS-163	6/28/84	102,200	109,389	2/25/88
Winchester	CS-175	6/26/85	49,189	59,142	1/06/88
	TOTALS	FY-88	6,945,068	5,491,620	
PRIOR YEAR TOTALS					
		FY-81	NONE	NONE	
		FY-82	NONE	NONE	
		FY-83	869,599	687,536	
		FY-84	1,766,466	1,444,520	
		FY-85	1,787,617	1,512,581	
		FY-86	1,339,488	1,289,183	
		FY-87	6,631,869	5,998,386	
	TOTALS - END	FY-88	19,340,107	16,423,826	

COLLECTION SYSTEM GRANT PROGRAM
NUMBER OF PIF'S RECEIVED



COLLECTION SYSTEMS GRANT PROGRAM

GRANT AWARDS



REGULATORY BRANCH

The Regulatory Branch ensures effective pollution abatement by administering programs for Surface Discharge Permits; Groundwater Protection; Indirect Discharge Permits and Pretreatment; Residuals Management; and Technical Assistance and Training. For all discharges, direct and indirect, to waters of the Commonwealth, the Regulatory Branch administers programs of permitting; plan approval; compliance inspections; operations and maintenance assistance; operator training; fee collection; and administrative and judicial enforcement.

Efforts continued during fiscal year 1988 to automate record keeping systems in permitting and enforcement activities. Tracking of indirect discharge permits was converted to a modified D-BASE system. An enforcement tracking system has been developed and was pilot tested on National Municipal Policy judicial cases.

In response to management initiative from former Commissioner Sylva regarding decentralization of operating functions to DEQE regional offices, the Regulatory Branch prepared an Organization Assessment to examine each program element of the Regulatory Branch to evaluate the existing central office/regional office relationship and to discuss and recommend alternative actions regarding further decentralization of operations. The report determined that currently neither the regions nor the central office have adequate resources to deal with the workload in the existing program areas, not to mention new activities that should be initiated or are mandated by outside developments. It was recommended that any actions to reorganize and decentralize be keyed to the following steps: obtain funding; establish positions; provide staff training; delegate function.

Staffing in the Regulatory Branch was further analyzed to meet grant conditions from the U.S.E.P.A. A document, "Impact 88" was prepared to demonstrate the substantial dependence of permitting, enforcement, and training activities on federal funds which are scheduled to be curtailed. Efforts to replace these federal funding sources with state funds were unsuccessful in fiscal year 1988.

Graphs included this year reflect the continuing growth in the workload of the Regulatory Branch. This sustained growth in workload without a corresponding increase in man years of effort is and will continue to result in growing backlogs or the prioritization of work resulting in some activities not being done.

SURFACE WATER PERMITS

The Federal Water Pollution Control Act Amendments of 1972 established a National Discharge Permit Program to control all point discharges into the nation's waters. The Massachusetts Clean Waters Act, General Laws, c. 21, ss. 26 to 53, prohibits the discharge of pollutants to waters of the Commonwealth unless authorized by a permit issued by the Division of Water Pollution Control of the Department of Environmental Quality Engineering. Rather than issue separate state and federal permits for point source discharges to surface waters, the Division of Water Pollution Control and EPA have entered into an agreement to cooperatively process and issue these permits. The joint permits issued under this program are developed to conform with both state and federal water pollution control laws and regulations and each agency has the independent right to enforce the terms and conditions of the permits. The permits establish effluent limitations, monitoring requirements, and other restrictions to ensure that all discharges to surface waters will be controlled in a manner that protects receiving water quality and that, in addition, will minimize the quantity of contaminants discharged to the lowest levels achievable by available technology. The permits are issued for a period not to exceed five years. Since the inception of the permit program, over 1400 permits have been issued or reissued by the Division and EPA. Technological advancements in the control of toxic and hazardous pollutants have been deployed with an emphasis on source reduction, toxicity testing, and pretreatment in recent issuance and re-issuance of permits. NPDES permits are screened for all organic and inorganic chemicals reported in permit applications, assessed for toxicity limits, and subjected to more stringent treatment requirements. Eighty-five (85) NPDES permits were reviewed and eighty-one (81) of them were issued during the period July 1, 1987 - June 30, 1988.

The design and construction of wastewater collection and treatment facilities that are needed to meet permit limits are regulated through the requirement for approval of engineering plans and specifications by the Division, as provided in section 27, of the Massachusetts Clean Waters Act. Any treatment facility which is authorized through issuance of a permit and approval of plans must operate in compliance with the Division's regulations for operation and maintenance of treatment facilities as well as the conditions of its permit.

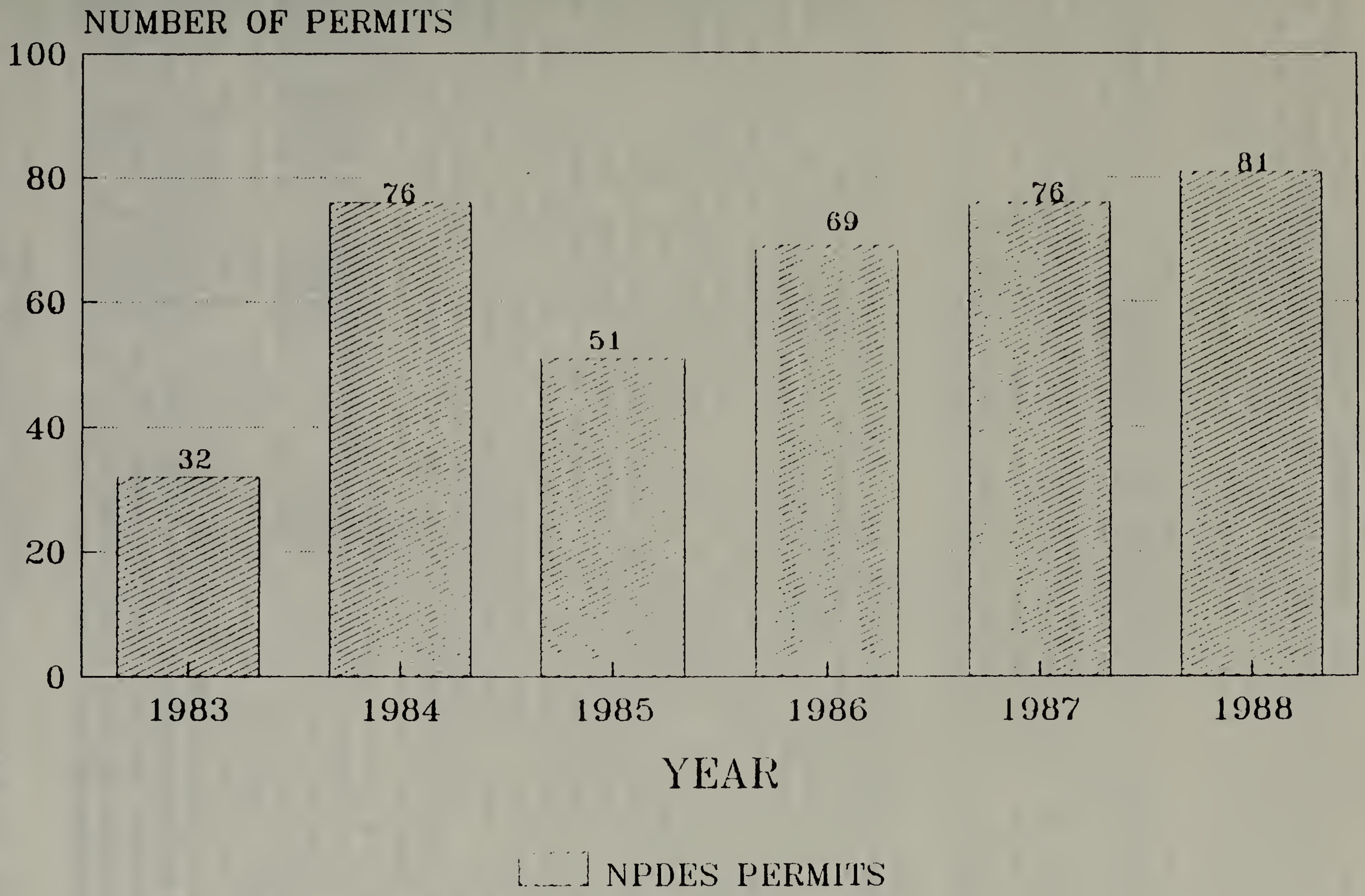
The Division has entered into an agreement with EPA to utilize the Permit Compliance System (PCS), the EPA national computerized management information system for NPDES permits to ensure accurate tracking of data related to facility permits, measurements of limitations, inspections, compliance schedules, and enforcement actions.

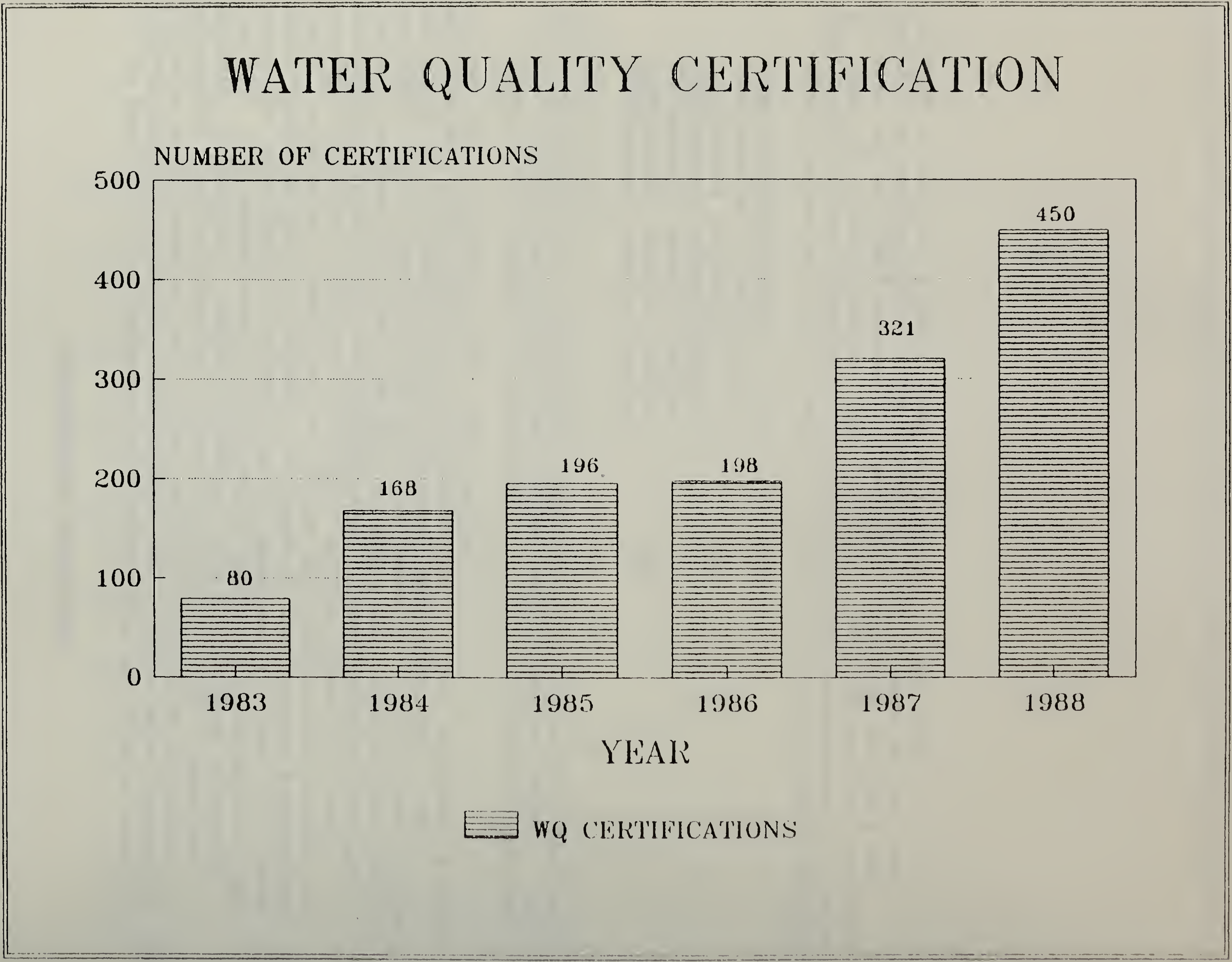
The Massachusetts Clean Waters Act provides the Division a number of options for dealing with permit violations. These include issuance of notices of non-compliance and administrative orders, assessment of administrative orders, and, through the Attorney General's office, civil or criminal court action.

Additional responsibilities of the surface water permit unit include issuing Water Quality Certifications for marine structures, and dredging or filling activities, and providing technical assistance to municipalities and industries concerning waste treatment and surface water permits. During FY'88, 450 Water Quality Certifications were issued.

NPDES Permits Drafted	85
NPDES Permits Issued	81
NPDES Quality Certifications Issued	450

NPDES PERMITS




WATER QUALITY CERTIFICATION
NUMBER OF CERTIFICATIONS
500
400
300
200
100
0
80
168
196
198
321
450
1983
1984
1985
1986
1987
1988
YEAR
▤ WQ CERTIFICATIONS

GROUNDWATER PROTECTION

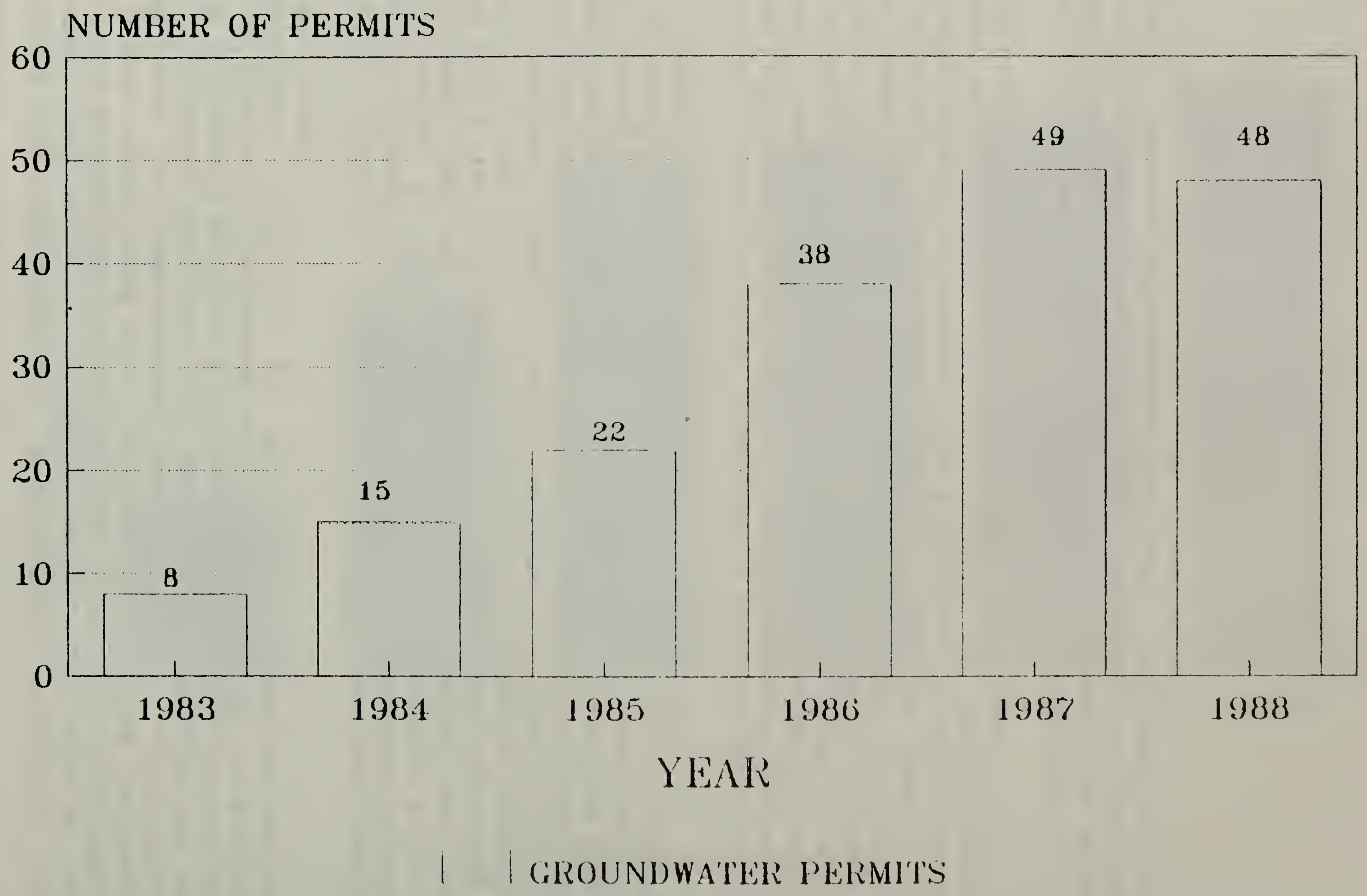
As part of a comprehensive DEQE Groundwater Management Program to protect the Commonwealth's groundwater and surface water resources, the Division's Groundwater Permitting Section coordinates discharge permitting with groundwater classification, Title 5 (subsurface disposal of sewage), septage disposal, and Underground Injection Control. The Massachusetts Groundwater Quality Standards (314 CMR 6.00) and Groundwater Discharge Permit Program (314 CMR 5.00) were established in 1983 to address the issue of groundwater protection. In 1985, a statewide classification system to classify groundwater as potable (Class I), potentially potable saline (Class II), and non-potable (Class III) was established. Classification efforts include reviews for class designation petitions, evaluations, public hearings, and recommendations for amendments to existing regulations. During FY 88 12 classification petitions were reviewed, 2 new applications were received, and subsequently, 1 was accepted, 8 were denied, and 1 withdrew their application.

Permits are issued for discharges of liquid effluent to the land surface, subsurface leaching facilities, and injection wells,. During FY 88 sixty-four (64) groundwater permits were drafted and forty-eight (48) were issued.

Groundwater Permits Drafted	64
Groundwater Permits Issued	48
Groundwater Permits Denied	3
Groundwater Classification Petitions Reviewed	12
Groundwater Classification Petitions Approved	1

Ground-Water Regulation Section staff continued to assist regional DWPC staff in the consistent interpretation and enforcement of Title 5: The State Environmental Code, Minimum Standards for the Subsurface Disposal of Sanitary Sewage. In addition, training seminars for Board's of Health agents were conducted once in each of the four regions to assist in the proper application of the code.

GROUNDWATER PERMITS



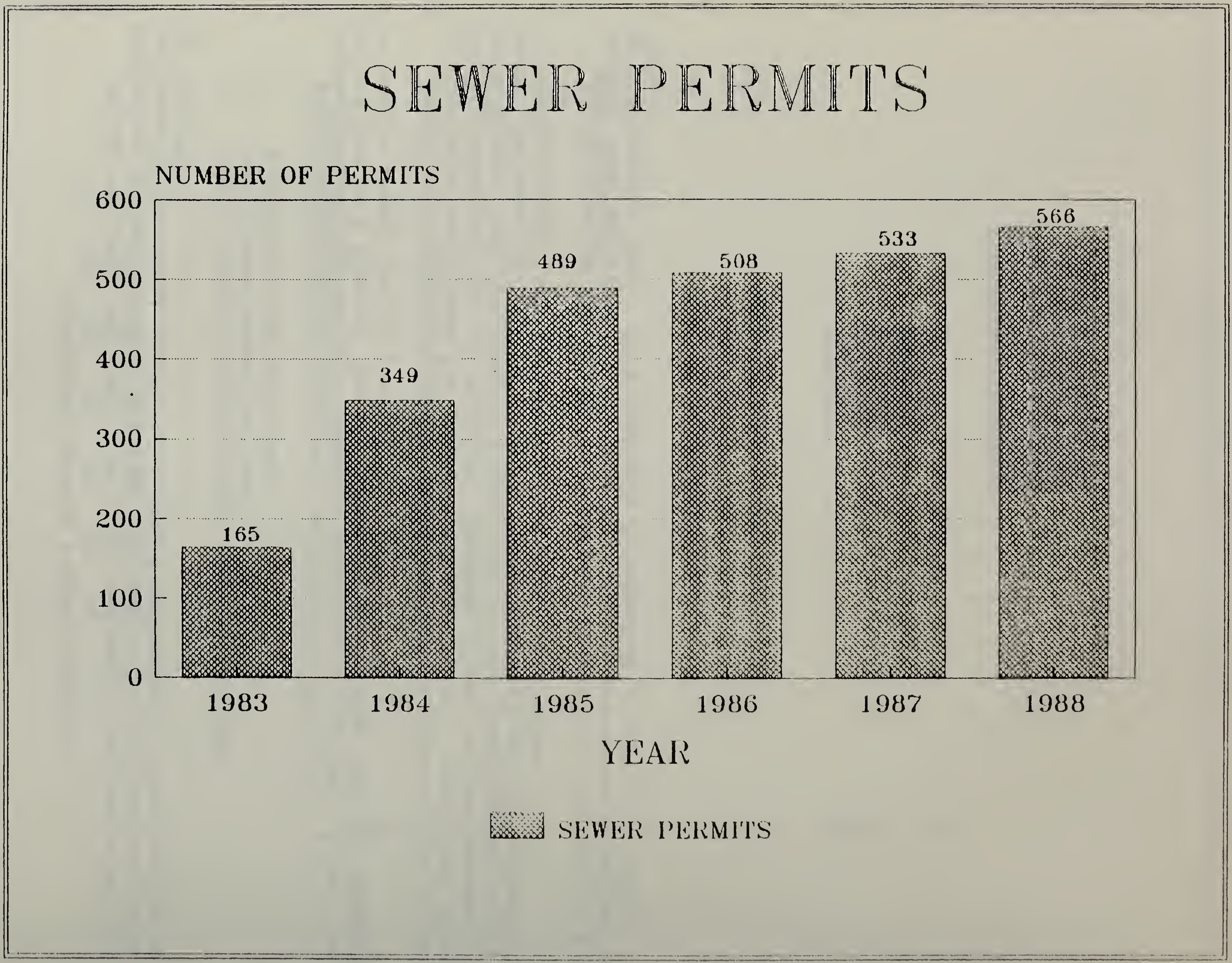
Indirect Permits and Pretreatment

The section regulates the use of municipal collection systems and publicly owned treatment works (POTWs) by issuing permits for sewer connections and extensions in conformance with the requirements of 314 CMR 7.00. Tasks associated with indirect permitting include reviewing engineering plans for pretreatment facilities and infiltration/inflow reduction, reviewing operation and maintenance manuals for sewer systems and POTWs and meeting with engineering consultants and municipal officials to recommend and accept methods to minimize sewage capacity problems. During FY 88, 566 sewer connection and extension permits were issued.

Industrial facilities which discharge toxic wastes, wastes not compatible with domestic wastes, or unusually high concentrations of conventional wastes to WWTPs must receive pretreatment prior to entering the municipal system. Thus far, 49 communities have been required by EPA's General Pretreatment Regulations and Massachusetts Regulations (314 CMR 12:00) to implement pretreatment plans at their wastewater treatment plants. Staff responsibilities in FY'88 for the Pretreatment program included reviewing pretreatment plans of study, reports, and programs for facilities, providing training and engineering assistance for wastewater treatment plant operators and municipal officials on pretreatment requirements, and conducting join compliance inspections and pretreatment audits with EPA.

Additionally, the Division conducted 6 Pretreatment Compliance Inspections independently as part of our Enforcement Agreement with EPA. Although severely limited in resources,a substantial effort has been made to expand the Division's influence to effect the proper implementation of local pretreatment programs and to prepare enforcement cases against those municipalities not willing to establish effective programs. These activities will play an important role in the Division's effort to control the discharge of toxic chemicals and promote waste minimization. In this regard, our staff represents the Division on the Department's "Source Reduction Work Group".

The section has successfully implemented a computer tracking system for its permitting activities. It is expected that the system will improve coordination with regional permitting activities, provide accurate permit status information for public information and quarterly and annual reports, and will increase productivity.


SEWER PERMITS
NUMBER OF PERMITS
600
500
400
300
200
100
0
165
349
489
508
533
566
1983
1984
1985
1986
1987
1988
YEAR
SEWER PERMITS

REGULATORY BRANCH REVENUE SOURCES

At the current time there are three sources of revenue within the Regulatory Branch and over the past six years there has been an annual increase in the total amount of revenues collected. These sources are as follows:

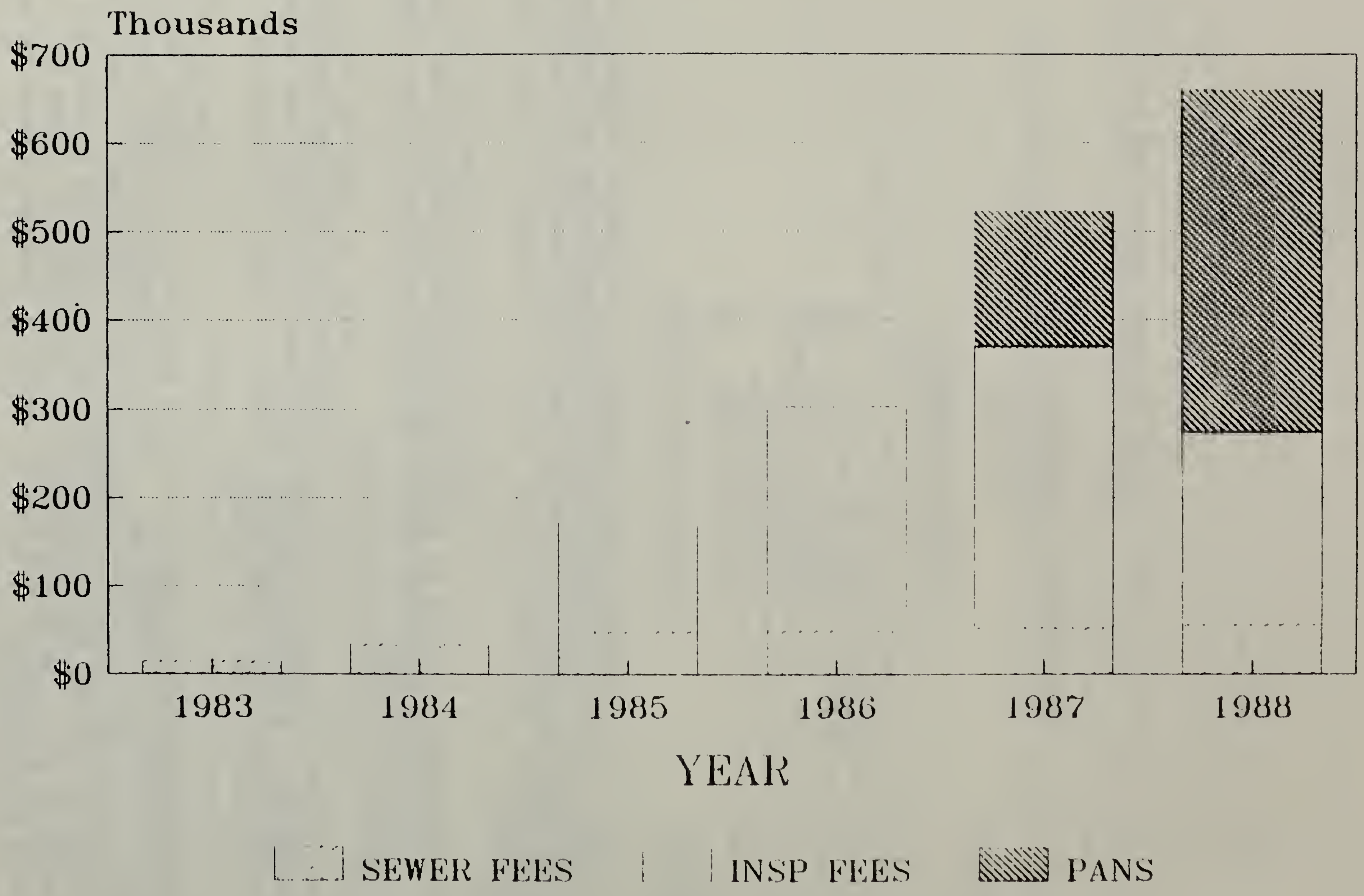
1. Sewer Connections/Extensions Application Fees
2. Compliance Inspection Fees
3. Administrative Penalties

Sewer Connections/Extensions: Applications for sewer connections/extensions have steadily increased since 1983. From a low of $16,500 to a high of $56,600. Revenue from these fees are expected to remain steady during FY-89.

Compliance Inspection Fees: Since the inauguration of the billing of discharge permittees for compliance inspections. Regulatory Branch has collected a total of $910,459. Revenue dipped in 1988 because of a re-alignment from the Federal fiscal year to the Commonwealth fiscal year. Revenue for 1989 is dependent upon the availability of personnel to conduct compliance inspections and other priorities.

Administrative Penalties: The largest increase in revenue is from penalty assessments which reflects the added emphasis on penalties as an enforcement tool. This emphasis is expected to continue during 1989.

REVENUES


Thousands
$700
$600
$500
$400
$300
$200
$100
$0
1983
1984
1985
1986
1987
1988
YEAR
SEWER FEES
INSP FEES
PANS

NORTHEAST REGIONAL OFFICE

The Northeast Regional Office is located at 5 Commonwealth Avenue in Woburn. The Region is comprised of 95 municipalities. The following river basins are located entirely or partially within the Region: Concord, Charles, Ipswich, Merrimack, Mystic, Neponset, Parker, Shawsheen, Weymouth Fore, Weymouth Back and the Weir River. The Region also covers all coastal waters from Salisbury to Cohasset which includes Boston Harbor and the North Coastal Area.

At the close of FY'88, the staffing for Water Pollution Control in this Region consisted of six engineers and one secretary. The engineer staffing level had been five engineers for most of FY'88, however in May, 1988 a sixth engineer was hired.

Operation and maintenance of wastewater treatment facilities, discharge permit compliance, and responding to pollution complaints continue to be the main focus of this office.

This office is presently tracking approximately 350 facilities which have existing or proposed discharges to surface or ground waters of the Commonwealth. Of this number, the following summarizes facilities in the Northeast Region presently permitted by the Division:

SURFACE WATER PERMITS

20	major municipal
17	major industrial
2	minor municipal
90	minor industrial
48	non-contact cooling water

GROUNDWATER PERMITS

32	domestic
6	industrial
17	groundwater reclamation
232	

The tasks and accomplishments of this Section for FY'88 are outlined as follows:

PERMITS

Surface Water Discharges

Permits reviewed	25
(19 were issued by the Boston Office)	
Engineering reports reviewed	6
Engineering final plans reviewed	3

Groundwater Discharges

Permits reviewed	24
(13 were issued by the Boston Office)	
Engineering reports reviewed	15
Engineering plans reviewed	7
Inspections related to permitting	15

Sewer Connections and Extensions

Permits reviewed	160
(318 applications received in Boston)	
(142 permits issued by the Boston Office)	

Title V

Variances reviewed	50
Other plans reviewed as required by Title V	14
Plans reviewed as technical assistance to Boards of Health	14
Site visits for technical assistance to Baords of Health	33

COMPLIANCE

Complaints received and evaluated	252
Field investigations conducted	199
Discharge monitoring reports reviewed	1,475
Major permittees inspected	47
Minor permittees inspected	48
Follow-up inspections conducted at permitted facilities	46
Technical assistance provided to WWTP's	4

ENFORCEMENT

Enforcement Actions Initiated by this Section during FY'88

Notices of Non-compliance issued	20
Administrative Orders issued	3
(Note: all resulted in consent orders, none are under appeal)	
Penalty Assessment Notices issued	7
($141,000 in penalties have been consented to be paid by the responsible parties in 6 of the cases, $25,000 is under appeal by one party.)	
Cases referred to the Attorney General	3

ENFORCEMENT (cont.)

Enforcement cases tracked (all those issued by Boston or by Region incluing those carried over from previous years and those initiated in FY'88)

Notices of Non-compliance	28
Administrative and Consent Orders	36
Cases working towards resolution at the A.G.'s Office	5
Consent Decrees through the A.G.	2
Total Ongoing Enforcement Actions	71

ADMINISTRATION

The responsibilities of this Section have required attendance at approximately 300 separate technical or administrative meetings.

During FY'88, 40 work days of total staff time were used for attendance at conferences and training seminars.

Concerning personnel, the Employee Performance Review System was fully implemented this year to provide better communication between employee and supervisor. Two engineers were promoted. Three engineers achieved civil service status after being certified in their positions. As mentioned earlier, a new engineer has been hired. Also, at the beginning of FY'88 the Section Chief was replaced.

AN OVERVIEW

There were several elements of this Section's program which required significantly more staff time than in previous years. Enforcement actions and the issueance of penalties were substantially increased this year and it should be noted that the effectiveness of these actions was directly attributed to the excellent support of the Division's legal counsel and the Regulatory Branch in Boston. Also pertaining to enforcement, the regional staff had to provide technical support to the Attorney General's Office in four major cases involving municipalities with inadequate wastewater treatment facilities. In permitting, considerably more time is being spent on the increasing number of groundwater permits. Also, an increased number of sewer connections permit applications are now being routed through the Region.

There are many projects and program elements within the Division of Water Pollution Control which have begun to receive considerably more attention and will eventually have an impact in the Region. The regional staff has not been able to keep up with all these developments. Examples of the Division's (and the public's) growing concerns are the MWRA facility planning and construction activities, residuals (sludge, septage, grease) management, pretreatment, combined sewer overflows, chlorine use minimization, and non-poing sources of pollution.

Priorities of other programs across the Department are also working towards cleaner water. The effort must be made to ensure the provisions of the Massachusetts Clean waters Act and the Division of Water Pollution Control regulations are met when implementing these programs. The regulation of hazardous waste activities and the clean-up of sites contaminated with hazardous substances has resulted in the discovery of many illegal discharges. These discharges must be brought into compliance. Examples of major studies in this Region which have identified facilities which must be reviewed for compliance are the Chelmsford aquifer study, the Malden/Mystic River study, and the Upper Neponset Valley study. Also, the clean up activities at sites often times result in treatment, storage, and disposal facilities in New England is located in this Region and a major effort will be put forth to properly monitor this site and wastewater discharges are an element of this monitoring program. Lastly, the Department's Northeast Regional Office intends to begin a new Merrimack River Watershed initiative. This will be an initiative to focus on the clean-up of a valuable water resource by coordinating several of the regulatory programs within the Department.

It is not anticipated that the number of staff people in the Division of Water Pollution Control Section of the Northeast Region will increase during FY'89. As the Department moves towards reorganization, a redefining of the role of the Division of Water Pollution Control staf in the Region is necessary.

The Water Pollution Control Section is located on the grounds of the Lakeville Hospital, Route 105 in Lakeville and presently has an engineering staff of one Environmental Engineer (EE) V, one EE IV, one EE III, one EE I and one Engineering Aide I.

Request for approval of plans for privately owned wastewater treatment facilities and Title 5 related issues continues to create a significant impact on the manpower resources of the section. This is illustrated below where it shows that 1528 separate review tasks were required to be performed on the 375 Title 5 projects submitted to the office. This is generally reflective of the continuing growth in Southeastern Massachusetts. The full time effort of two (2) engineers and to a lesser degree, the involvement of the remaining staff cannot meet the full needs of that program and as a consequence the other objectives of the Program Plan are not being adequately met. The office has recognized a direct relationship between successful training and information sessions with local Board of Health and an increase in routine formal submittals and communication in the Title 5 Program.

The following tasks were accomplished during fiscal 1988:

Pollution Complaints Investigated	39
Review Self Monitoring Reports	1087
Attendance at Meetings and Hearings	192
Prepare Cases for Enforcement	11
Issue Administrative Orders	8
Issue Notice of Violation	9
Title 5 Reviews and Approvals	1528
Engineering Report Reviews	29
Discharge Permits Reviewed (Surface)	22
Discharge Permits Reviewed (Groundwater)	125

CENTRAL REGIONAL OFFICE

The Central Regional Office is located at 75 Grove Street, Worcester, MA 01605 and serves a total of 80 municipalities in Worcester and portions of Norfolk and Middlesex Counties.

The permanent DWPC staff presently consists of an Environmental Engineer V, an Environmental Engineer IV, an Environmental Engineer III, an Environmental Engineer II, an Environmental Engineer I and a Word Processor I.

The Central Region currently has a total of 38 municipal wastewater treatment facilities and approximately 100 industrial surface discharge permittees. In addition, approximately 90 groundwater discharge permits have been issued for domestic or industrial discharges in the region. This number is currently growing monthly.

The region has been experiencing extensive growth development, with greatest intensity along the I-495, I-290 and Route 9 corridors. Since many communities in these areas are unsewered, those programs related to groundwater discharges (Title 5 and the groundwater discharge permit program) have experienced significant increases in workload. In addition, many of the sewered communities along the Assabet River, Quaboag River, and Millers River have just completed or are currently in the process of upgrading or expanding their municipal; wastewater collection and treatment systems. Monitoring these projects have placed additional burdens on the regional staff. Some of these treatment facilities will be treating increasing amounts of industrial wastes which will place greater emphasis on the industrial pretreatment programs and sewer extension review in order to ensure that permit limits can be achieved.

As noted above, the Central Region contains many growing unsewered communities which generate increasing amounts of septage to be disposed. To date, the number of available wastewater treatment facilities have not been sufficient to handle the amount of septage generated. Greater emphasis will therefore be needed on the septage and sludge disposal programs.

The following tables show the accomplishments of the Section for State Fiscal Year 1988.

ADMINISTRATION

PROGRAM PLAN PROGRESS	5
SUPPORT ACTIVITIES - GENERAL LETTERS, MEMOS, MEETINGS	1233
MEPA DOCUMENTS - ENF, EIR	88
PERFORMANCE EVALUATIONS	14

COMPLAINTS

TELEPHONE COMPLAINTS/INQUIRIES	142
COMPLAINT FIELD INVESTIGATION/FOLLOW-UP	27

PLAN/PERMIT REVIEW

ENGINEERING REPORTS AND PLANS	66
SURFACE DISCHARGE PERMITS	22
SUBSURFACE DISCHARGE PERMITS	21
SEWER PERMITS	265
SLUDGE LAND APPLICATION/LANDFILL	11
REVIEW TITLE 5 PLANS, INSPECTIONS	147
APPROVE TITLE 5 VARIANCES, INSPECTIONS	137

COMPLIANCE

REVIEW SELF-MONITORING REPORTS	1047
INSPECT MAJOR PROBLEM PERMITTEES	90
INSPECT MINOR PROBLEM PERMITTEES	43
INSPECT NON-PROBLEM PERMITTEES	56
FOLLOW-UP MEETINGS	17
TECHNICAL ASSISTANCE	7

ENFORCEMENT

TRACKING	89
NOTICES	12
ORDERS	9
PENALTIES	8
REFERRALS	0
TESTIMONY	8

WESTERN REGIONAL OFFICE

The Western Regional Office (WRO) is located with other DEQE Divisions in the Old Federal Post Office Building (now know as State House West) of 436 Dwight Street, Springfield, MA. This office serves the 101 municipalities in the four Western Massachusetts counties of Berkshire, Franklin, Hampshire and Hampden. The WRO currently has 34 municipal wastewater treatment facilities and approximately 75 commercial/industrial wastewater treatment facilities that have NPDES permits.

Staffing for the WRO consists of one each of the following: Environmental Engineer V, IV, III, II, I. With the mandate of the electrorate under the Question 4 proposition, this office has been earmarked to receive an additional Environmental Engineer II and an Administrative Assistant I.

The region contains many growing unsewered communities which will put an increased demand upon the local Boards of Health and the Department to effectively manage the septage that will be generated. Illegal septage disposal lagoons are being brought to the attention of this office and to date this office has initiated enforcement actions to close the four such lagoons reported over the past year. On the positive side the Department has contract with a regional planning agency in this region to conduct an assessment of the septage disposal dilemma and propose some alternatives for unsewered communities and the need to provide effective septage management in an environmentally sound way.

Continued implementation of M.G.L. Chapter 21A Section 16 has resulted in the issuance of 22 Administrative Orders/Consent Orders and 25 Notices of Non-Compliance. As a result, this office has reviewed approximately 41 plans and reports submitted for Department approval to rectify the deficiencies that led to the enforcement actions. It is somewhat difficult to measure the effectiveness of the Department's enforcement initiative in preventing situations from arising that would involve the Department in an eforcement mode. However, as judged by the number of telephone calls received by this office which request information and guidance on matters of Department business it appears that enforcement is an effective tool in securing compliance with Department regulations, as the regulated community is coming to learn of our regulations through media coverage of enforcement actions.

For FY'88 this office was able to conduct formal inspections and meet program plan requirements in the area of major municipal and industrial discharges. Formal inspections did pay closer attention to the permit requirements of 314 CMR 3.00 (reporting requirements) and 314 CMR 12.00 (operations and maintenance requirements). Minor municipal wastewater treatment plants were inspected this past year and almost all minor industrial discharges were inspected. Those that were not inspected are primarily non-contact cooling water discharges.

As the Division heads into next year, the Town of Charlemont will be constructing a wastewater treatment plant as will to Town of West Stockbridge and the Town of Russell. The Town of Greenfield is in the process of designing an expansion of its wastewater treatment plant and the Town of Hatfield, Hadley and Stockbridge have begun operation of new secondary wastewater treatment facilities. For example, the City of Springfield is undertaking the development of an in-vessel sludge composting program and the Town of Amherst is pursuing a regional sludge composting program. The Town of Deerfield, the Buckland/Shelburne regional wastewater treatment facility, the City of Chicopee, and the City of Springfield are upgrading sludge dewatering unit operations.

In the area of response to complaints, this office received over 170 complaints and responded directly to 72 of them. Many of the complaints received by this office were forwarded to the appropriate local organization (usually the Board of Health) under the authority of 310 CMR 11.00. In this way problems can often be addressed at the local level, adding to the credibility of the local authorities and allowing the Division to address the more major issues.

Permit and plan review continues to be an important Division function. For FY'88 this office reviewed 419 submissions in the area of Sewer Extension/Connection Permits, Regulatory, MEPA, Sludge/Residuals managements, Grants and Title 5 permit and plan review activities. By far, the largest number of permit and plan reviews come in the areas of Title 5 plan review with Sewer Extension/Connection Permit applications a close second. Together these account for over 75% of all plan reviews.

Clearly, as the Division proceeds into the future there will be a continuing need to develop staff expertise, prioritize the workload and coordinate with other Divisions of the Department, especially in the areas of residuals management, waste reduction/pollution prevention and assessment and cleanup of groundwater resources.

WESTERN REGIONAL OFFICE (cont.)

The following is a statisical breakdown of the various program plan accomplishments:

Administration

Program Plan Progress Monitoring (EPRS and internal meetins with staff	91
Performance Evaluation	10
Support Activities Meetings (general letters, memos, meetings, filings)	220
MEPA Documents Reviewed (ENF, OEIR, FEIR)	14
Construction Grants (reports and plans)	8

Permits Reviewed/Issued

Surface Discharge Permits	20
Engineering (regulatory plans and reports)	41
Pretreatment (municipal annual summary reports)	17
Sewer Extension/Connection Permits	161
Subsurface Discharge Permits	4
Title 5 Plan/Application Review	194
Site Inspections (Title 5)	29
Title 5 Variances Issued	35
Sludge Only Landfills (Plan review)	1

Complaince

Complaints/Inquiries	177
Complaint Field Investigation/Follow-up	72
Review Self Monitoring Reports	1163
Inspect Major Permittees	50
Inspect Minor Permittees	32
Follow-up Inspections	66
Meetings Related to Inspections (staff and permittees)	112
Technical Assistance	18

Enforcement

Case Tracking	62
Notices of Non-Compliance	25
Administrative/Consent Orders	22
Penalty Assessment Notices	10
AG Referrals	2
Testimony (AG Assistance)	6

TECHNICAL SERVICES BRANCH

ANNUAL REPORT

Administration Section

During FY'88, personnel administration continued to be the longest and most time consuming ongoing task. Interviews, selection and fiscal juggling to accommodate salary changes have consumed significant amounts of time and effort. The updating of job specifications and duties, preparation of Form 30s and Form 40s, as well as many other forms needed for out-of-state travel and the like, were among the many functions performed. Considerable effort has also gone into the preparation and follow-up on expense vouchers for Technical Services Branch personnel.

The single most time consuming element of this activity continued to be the conduct of Employee Performance Reviews for all employees assigned to the Technical Services Branch (TSB). This activity continued to be worthwhile, by better defining responsibilities and expectations of supervisors and subordinates, which has resulted in a more efficient use of time and resources.

The hiring of personnel also continued to consume a large block of time. The following new personnel were recommended to be hired during FY'88:

1. Tradesworker (11/12/87)
2. Environmental Engineer IV (1/14/88)
3. Clerk III (4/12/88)
4. Steno II (6/2/88)
5. Aquatic Biologist III (6/30/88)

In addition, substantial effort went into the appointment of five Environmental Engineer III's from the Civil Service list for those positions; the advertising and unsuccessful search for a part-time accountant; and the conversion of two Clerk and three Steno positions to the Word Processing Operator ladder.

Twelve (14) seasonal (summer) employees were selected and assembled. Their contribution was significant once again as all proved to be willing and hard workers. The continued cooperation of the Division of Employment Security and area colleges and universities contributed to the success of this venture. Thirty-two (32) new reports were prepared by staff and submitted for printing, thirty-three (33) new reports returned. Twenty-two (22) republications were submitted, and twenty-two (22) were printed and returned. Eighteen (18) non-report projects were submitted, printed and returned. A substantial effort has continued to to into learning applications of the computer assisted drafting system which is resulting in the production of more sophisticated graphics and the ability to utilize various geographic information systems. This aspect alone, in the context of nonpoint source problems, makes such a system attractive.

Activities related to the new physical plant consumed about the same amount of time as the previous year. At this time, the TSB is still ready to begin the design phase of its new building as soon as necessary funds are made available through the Capital Outlay Budget process.

FY'88 was the fifth full year in which a Grants Management Specialist III has been assigned to the Technical Services Branch, and the second year for a part-time Accountant III. This position has had a profound effect on the operation, as budgeted funds have been effectively utilized to provide much needed supplies and maintenance. Additionally, this has continued to result in invoices being processed promptly and assuring vendors of payments in a timely manner.

A significant amount of time was expended in dealing with a variety of administrative items for the Clean Lakes Program. The Chapter 628 program contributed a large number of substate agreements, contracts and invoices to be reviewed. Some additional time was spent reviewing Section 314 (Federal Clean Lakes Program) and Chapter 722 documents. A table of TSB expenditures follows:

EXPENDITURES

FISCAL YEAR 1988

SUBSIDIARY	FUND SOURCE	AMOUNT	TOTAL
Services	State	$ 21,335	
	State Aquatic Weed	$106,267	
	Federal	$ 3,744	
	Research & Demonstration	$106,423	$237,769
Clothing	State	0	
	Federal	$ 1,014	
Laboratory Supplies	State	$ 8,736	
	State Aquatic Weed	$ 633	
	Federal	$ 9,206	
	Research & Demonstration	$ 3,045	$ 21,620
Building Operations	State	$ 2,414	
	Federal	0	$ 2,414*
Travel	State	$ 6,895	
	State Aquatic Weed	$ 1,991	
	Federal	$ 1,451	$ 10,337
Advertising/Printing	State	$ 1,019	
	Federal	$ 4,627	
	Research & Demonstration	$ 384	$ 6,030
Maintenance/Repairs	State	$ 5,620	
	State Aquatic Weed	$ 3,179	
	State Capital Fund	$ 5,845	
	Federal	$ 1,908	$ 16,552
Office and Administration	State	$ 26,665	
	State Aquatic Weed	$ 1,973	
	Federal	$ 1,103	$ 29,741
Rentals	State	$ 5,979	
	Federal	$ 100	$ 6,079

FISCAL YEAR 1988 (CONTINUED)

SUBSIDIARY	FUND SOURCE	AMOUNT	TOTAL
Equipment			
	State	0	
	State Aquatic Weed	$ 6,224	
	Federal	$127,161	
	Research & Demonstration	$230,581	$363,966
Special Expense			
	Research & Demonstration	$ 62,846	
	State Aquatic Weed	$ 11,121	$ 73,967
Totals			
Totals	State	$ 78,663	
	State Aquatic Weed	$131,388	
	State capital Fund	$ 5,845	
	Federal	$150,314	
	Research & Demonstration	$403,278	$769,489

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* Expenditures for electricity and water charges were made through the D.E.Q.E. central account.

EXPENDITURES

FISCAL 1988

Other Sources:

Bond Funds

Research and Demonstration	$407,585
Clean Lakes and Great Ponds	$1,171,296
Federal	$ 60,342
TOTAL EXPENDITURES:	$2,408,712

Water Quality Management Section

Water Quality Monitoring Surveys

Intensive water quality surveys on the Assabet River were conducted during the 1987 field season to examine the effects of regionalization and the addition of advanced treatment to the Westborough-Shrewsbury discharge and the upgrades at the Hudson and Maynard Wastwater Treatment Plant (WWTP) on water quality. Intensive surveys on the Charles River were conducted to monitor the effects on water quality of regionalization at the Charles River Pollution Control District, which combined the discharges from Medway, Franklin, and Millis, and to provide information on the water quality of proposed public swimming areas. Intensive surveys on the Millers River were conducted to assess potential toxicity of paper wastes, determine if there was a source of PCB's in the basin, and to revise the original waste load allocations.

The field program also included synoptic surveys on the Assabet River to monitor the water quality of the upper portion especially for dissolved oxygen in relation to odor problems and because of general public interest. Sampling on the French River was conducted to collect data for waste load allocations at the Oxford Rochdale WWTP and the proposed Thayer Pond Village WWTP, and to determine if the operation of a sludge handling facility at the Webster WWTP had improved the water quality in the river and in three impoundments downstream. A "source differentiation" sampling program on the North River was conducted with the Biology Section to identify the nonpoint sources of high bacterial concentrations. The study concluded that the major nonpoint pollution sources to the North River were the tributaries, specifically Dwelleys Creek and Stony Brook in Norwell and First Herring Brook in Scituate. In the fall, monthly surveys on the Charles River were conducted to determine the effect of Combined Sewer Overflow (CSO) in Milford and the effect of the Milford WWTP on the river and Box Pond.

The 1988 field program for the Basin Planning Section included intensive water quality surveys on the Blackstone River to update water quality data, and assess the impact of phosphorus removal at the Upper Blackstone Water Pollution Abatement District, the Mill brook stormwater disposal facility, and sanitary dischargers from the Cherry Valley Area. Intensive water quality surveys on the Rumford, Wading, and Three Mile rivers were conducted to update water quality data, assess potential toxicity of metal plating wastes, and evaluate advanced waste treatment at the Mansfield WWTP. Water quality surveys on the Nemasket River were conducted to update water quality data and evaluate phosphorus removal at the Middleborough WWTP and the effect of the Ocean Spray discharge on the WWTP. In response to a request by the Upton Board of Health, water quality surveys were conducted on the West River to assess the possible contamination of a small unnamed brook in West Upton where gas odor had been previously detected. A hazardous waste assessment program was initiated at the Benzonoide site in Bellingham.

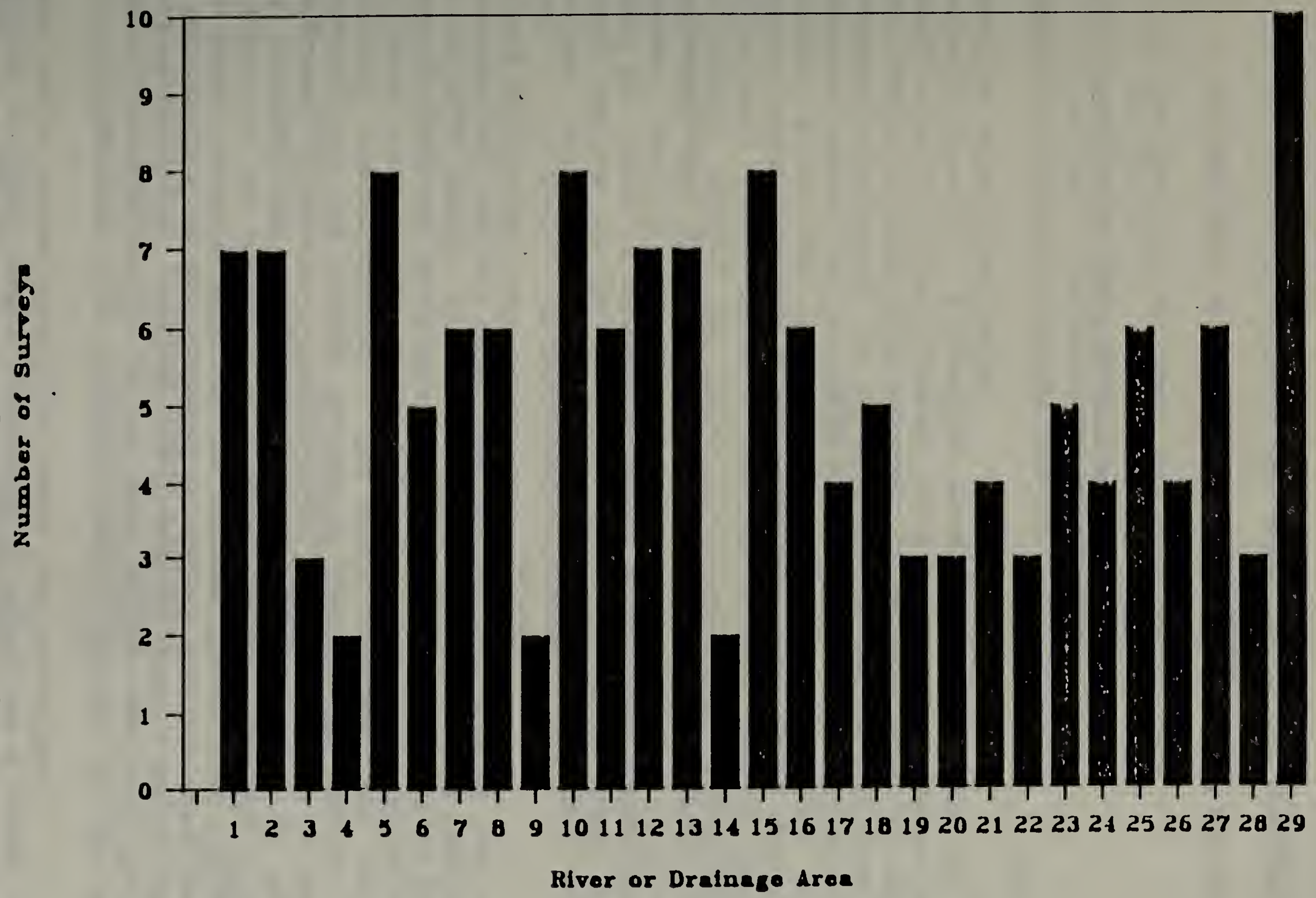
Reports and Evaluation of Water Quality

The following water quality reports were completed:

1. The Taunton River Basin 1986 Water Quality Data
2. The Merrimack River Basin 1986 Water Quality and Discharge Data
3. The Concord River Basin 1986 Water Quality and Discharge Data
4. The Charles River Basin 1987 Water Quality and Discharge Data
5. The French River Basin Water Quality and Discharge Data

NUMBER OF ANNUAL SURVEYS

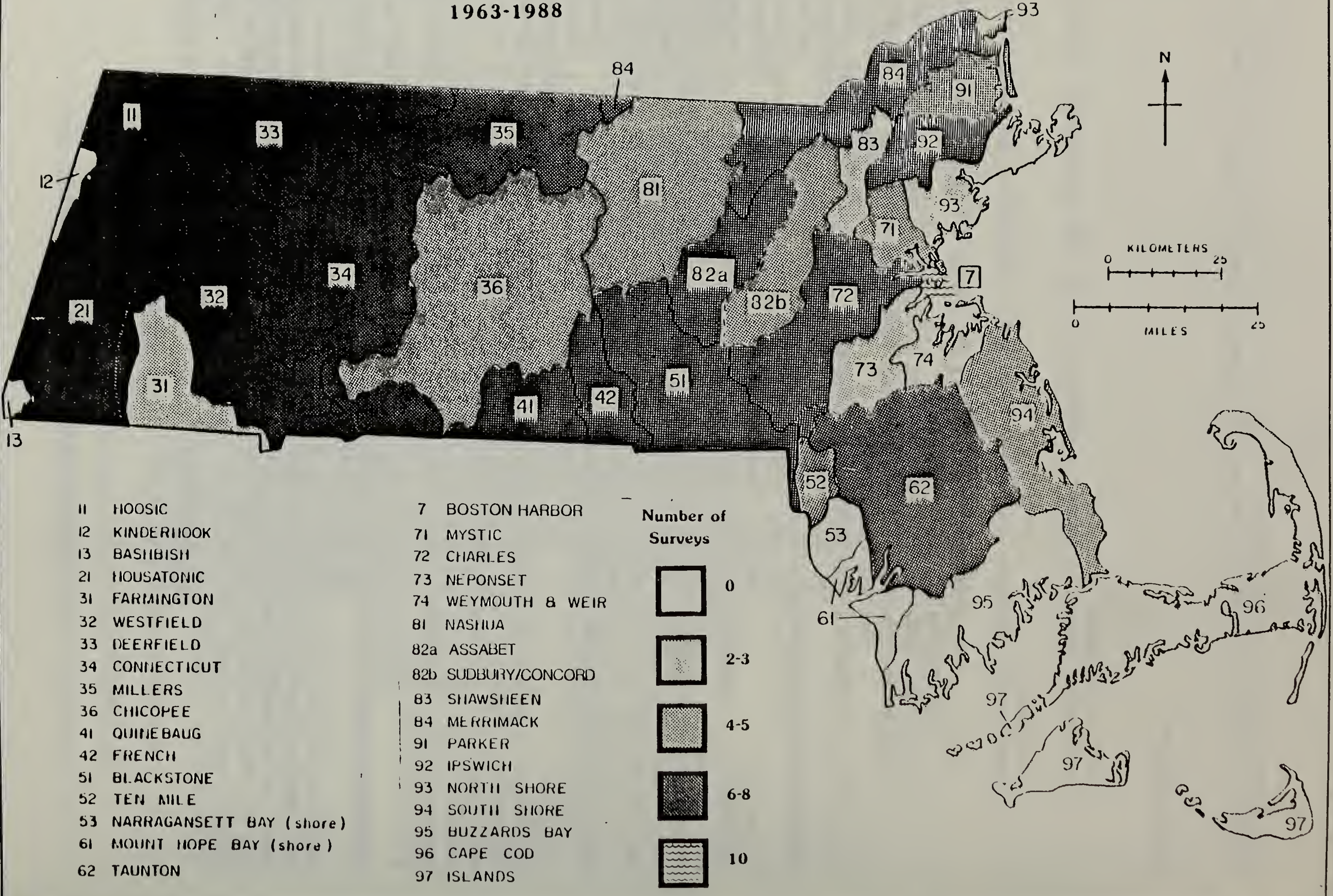
1963–1988



1 Assabet
2 Blackstone
3 Buzzards Bay
4 Cape Cod
5 Charles River
6 Chicopee
7 Connecticut
8 Deerfield
9 Farmington
10 French & Quinebaug
11 Hoosic
12 Housatonic
13 Ipswich
14 Islands
15 Merrimack & Stony Brook
16 Millers
17 Mystic
18 Nashua
19 Neponset
20 North Shore Coastal
21 Parker
22 Shawsheen
23 South Shore Coastal
24 Sudbury/ Concord
25 Taunton
26 Ten Mile
27 Westfield
28 Weymouth
29 Boston Harbor

NUMBER OF ANNUAL SURVEYS

1963-1988



WATER QUALITY SURVEYS

RIVER & DRAINAGE AREAS		YEARS SURVEYED
Assabet		1965, '69,'74,'79,'85,'87,'88
Blackstone		1964, '70,'73,'77,'82,'85,'88
Boston Harbor		1969, '72,'82,'83,'84,'85,'86,'87,'88
Buzzards Bay		1971, '75,'86
Cape Cod		1976, '81,'88
Charles River		1967, '83,'74,'78,'84,'86,'87,'88
Chicopee		1966, '72,'74,'80,'85
Connecticut:	Upper	1966, '73,'78,'83,'88
	Lower	1966, '71,'78,'83
Deerfield		1965, '73,'77,'82,'83,'88
Farmington		1974, '88
French & Quinebaug		1965, '72,'74,'76,'81,'82,'85,'87
Hoosic		1965, '73,'77,'82,'85,'86
Housatonic		1963, '64,'69,'74,'78,'82,'85
Ipswich		1968, '73,'78,'81,'83,'85,'87
Islands		1976, '81
Merrimack & Stony Brook		1963, '74,'79,'80,'83,'86,'87
Mystic		1967, '73,'79,'86
Nashua		1963, '73,'77,'82,'85
Neponset		1964, '73,'86
North Shore Coastal		1976, '81,'85,'88
Parker		1968, '75,'78,'84
Shawsheen		1968, '74,'82
South Shore Coastal		1971, '75,'76,'81,'83
Sudbury/Concord		1965, '73,'79,'86
Taunton		1964, '70,'75,'83,'86,'88
Ten Mile		1968, '70,'73,'84
Westfield		1965, '72,'74,'78,'84,'85
Weymouth		1975, '78,'82

6. The Assabet River 1986-87 Water Quality and Discharge Data

7. The Charles River Basin 1987 Water Quality Management Plan

8. The Ispwich River 1988 Water Quality Management Plan

Water quality analyses were included in the above data reports. A water quality data report with analysis for 1987 data for Stony Brook was prepared and is in draft form. The water quality management plan for the Sudbury River Basin was prepared and final comments have been addressed. The 305(b) report was completed and submitted to the EPA on March 31, 1988. An assessment of nonpoint sources was included as part of this report.

Technical Evaluation of Water Quality Issues Related to Construction Grants

Eight facility plans, 12 plans of study, 36 NPDES permits, 5 FONSI's and 6 antidegradation waivers were reviewed. A staff member attended monthly meetings with the DWPC and EPA permit sections to discuss water quality issues and update the status of NPDES permit reviews. An evaluation of the need for year-round phosphorus at the Marlborough East WWTP was completed. A wasteload allocation for the Oxford-Rochdale WWTP was completed and is under review by the EPA.

Lower Connecticut River Combined Sewer Overflow Project

The draft copy of the recommended plan was reviewed and public hearings were held. The final recommendation report was reviewed and comments were submitted to Metcalf and Eddy. A meeting was held with the DWPC Regulatory Section on the permit and regulatory requirements that will follow the project's completion. A meeting was held to discuss the funding for the CSO abatement projects.

Conferences and Meetings

Significant conferences and training included:

1. One staff member attended the 60th Water Pollution Control Federation Conference and was named a member of the Ecology Committee.

2. Two staff members attended a seminar on toxics in NPDES permits.

3. One staff member attend a national symposium on water quality assessment.

4. One staff member attended a meeting on the EPA biotoxicity testing in the NPDES permit program.

Marine Section

During this report period Marine Section personnel were actively engaged in the following eight (8) major areas:

1. Coastal Water and Sediment Monitoring
2. "Question Four"
3. Report Preparation
4. Caged Mussel Study
5. Review and comment activities related to water quality aspects of coastal discharges
6. Participation in professional meetings
7. Clean Lakes Program
8. Participation on Technical Advisory Committees

Coastal monitoring activities included major surveys in Lynn Harbor, Saugus River, Pines River, and Waquoit Bay and tributaries (Cape Cod). Other surveys were conducted in Nantucket Harbor, Boston Harbor, Danvers River, Salem Harbor, and Popponesset Bay (Cape Cod).

Question 4 - related studies included sediment, water and biota sampling in the Paskamansett River near Sullivan's Ledge and the New Bedford Landfill, and in the Wankico River near the Tri-Town Landfill, Carver. Marine Section Staff members also provided extensive assistance to the DEQE Northeast Region with the development of two studies: The environmental assessment of the RESCO Incinerator Facility in the Saugus-Pines Estuary, and the sediment survey conducted along the Mystic and Malden Rivers.

Report preparation activities centered on the Buzzards Bay Interpretive Reports (cranberry bog inputs, sediment contamination, biota metals and water quality studies); and data reports on other studies in Salem-Beverly, Lynn, Wellfleet, Nantucket, Martha's Vineyard, and Boston Harbor.

During the report period, Marine Section members conducted a yearlong pilot study in Buzzards Bay to explore the feasibility of using transplanted mussels to assess spatial and temporal patterns of contamination of coastal waters by heavy metals and polychlorinated biphenols. Data analysis and report preparation will be completed in FY'89.

Marine Section personnel were heavily involved in review and comment activities pertaining to the following Construction Grants Projects: South Essex Sewer District (Outfall Siting), Lynn CSO Facilities Plan, Swampscott Outfall Siting Facility Plan, Boston Harbor (Outfall Siting and CSO Facilities Plans), Scituate, Plymouth, Provincetown, Mashpee, Chatham, Orleans, New Bedford (Outfall Siting and CSO Facilities Plans), Fairhaven (Sludge Disposal Facilities Plan), Dartmouth Outfall Siting, and Fall River (CSO Facility Plan).

Marine Section staff participated in two professional conferences during this report period. Two papers were delivered at the 1988 meeting of the New England Association of Aquatic Biologists in Newport, Rhode Island, and a presentation was made at the Rural Clean Water Program conference in St. Paul, Minnesota.

The Marine Section manages the salt pond component of the Clean Lakes Program. During this report period a substate amendment was prepared for Little Harbor Pond, a substate agreement was written for Tisbury Great Pond, a Phase I report for Lagoon Pond was reviewed and the Scope of Work for both Tisbury and Edgartown Ponds were finalized.

Throughout this report period Marine Section staff attended meetings of several technical advisory committees, including the Boston Harbor Technical Advisory Group, The Lynn Citizens Advisory Committee, the Executive Office of Environmental Affairs (EOEA) Technical Advisory Committee, the Massachusetts Coastal Monitoring Committee, the Buzzards Bay Technical Advisory Committee, and the Mass Bay/Cape Cod Bay Technical Advisory Committees for the Brayton Point and Pilgrim Power Plants.

Nonpoint Section

Fiscal year 1987 represents the first year of existence for the Technical Services Branch-Nonpoint Section. Staffed with one full-time employee during the first three months, two full-time employees during the next six months and three full-time employees during the final three months, the section was able to meet all of its objectives and deadlines as set forth in the FY'87 work plan.

The primary goal of the section was to submit to EPA a statewide nonpoint source assessment report by April 1, 1988 that met EPA criteria. This report was assembled, publicly reviewed, published and delivered to EPA a day early. Massachusetts was the only New England state to do so.

The development of a state-funded nonpoint source program was given considerable emphasis particularly during the fall of 1987. At that time, a bill to establish such a program passed the House of Representatives and went as far as the Senate Ways and Means Committee before time expired in the 1987 session. The technical merit of the bill received widespread support, but financial concerns stalled passage. In 1988, the same financial concerns have kept the bill in the House Ways and Means Committee. Approval of the bill is not likely at this time.

The Nonpoint Section applied for and received federal funds intended to establish a state nonpoint source program. Field equipment and office supplies were purchased through the year, enabling the section to conduct field assessments and manage information.

An ongoing activity has been the development of the Nonpoint Source Management Plan. This key document will outline just how the section will select and fund projects, as well as operate as a clearing house for nonpoint source related information. A Nonpoint Source Advisory Committee was formed whose members represent private, local, regional, state and federal organizations. This committee has been very helpful in creating a management plan that addresses each facet of a complex subject. It is crucial to the success of the program that a network of organizations and individuals be established whose members are actively involved. The Nonpoint Source Management Plan is due to EPA by August 4, 1988.

Lakes Section

The Massachusetts Clean Lakes and Great Ponds Program, as created under Chapter 628 of the Acts of 1981, is now entering its seven year of funding. The program has proven to be popular with cities and towns during the fiscal years 1983-1988 and will probably remain so in FY'89. In fact, 58 Requests for Assistance were received for FY'89. Until FY'86 the Division was able to make grant offers to all eligible applicants. Since many of the projects have progressed from Phase I to Phase II projects, we have had to issue an extended eligibility list during the FY'86, FY'87 and FY'88 funding years.

Six projects were active under the Eutrophication and Nuisance Aquatic Vegetation Control Program during FY'88. Dorothy Pond, Millbury; Turnpike and Mirimichi Lakes, Plainville; Chandler Pond, Boston; Box Pond, Bellingham; Leesville Pond, Auburn; and Hoosac Lake, Cheshire.

The Lakes Section is also currently administering major restoration projects under the federal 314 Clean Lakes Program: Lake Cochituate, Natick/Framingham/Wayland; Porter Lake, Springfield; Dunn Pond, Gardner; Lake Lashaway, East and North Brookfield; Whitman's Pond, Weymouth; Eagle Lake, Holden; Lake Buel, Monterey/New Marlborough.

The staff level for the Clean Lakes Program remained nine full-time employees during FY'88. Support activities were also given legal and accounting activities.

Following a list of FY'83-Fy'88 projects receiving partial funding under the Massachusetts Clean Lakes Program.

GRANT ELIGIBILITY LIST

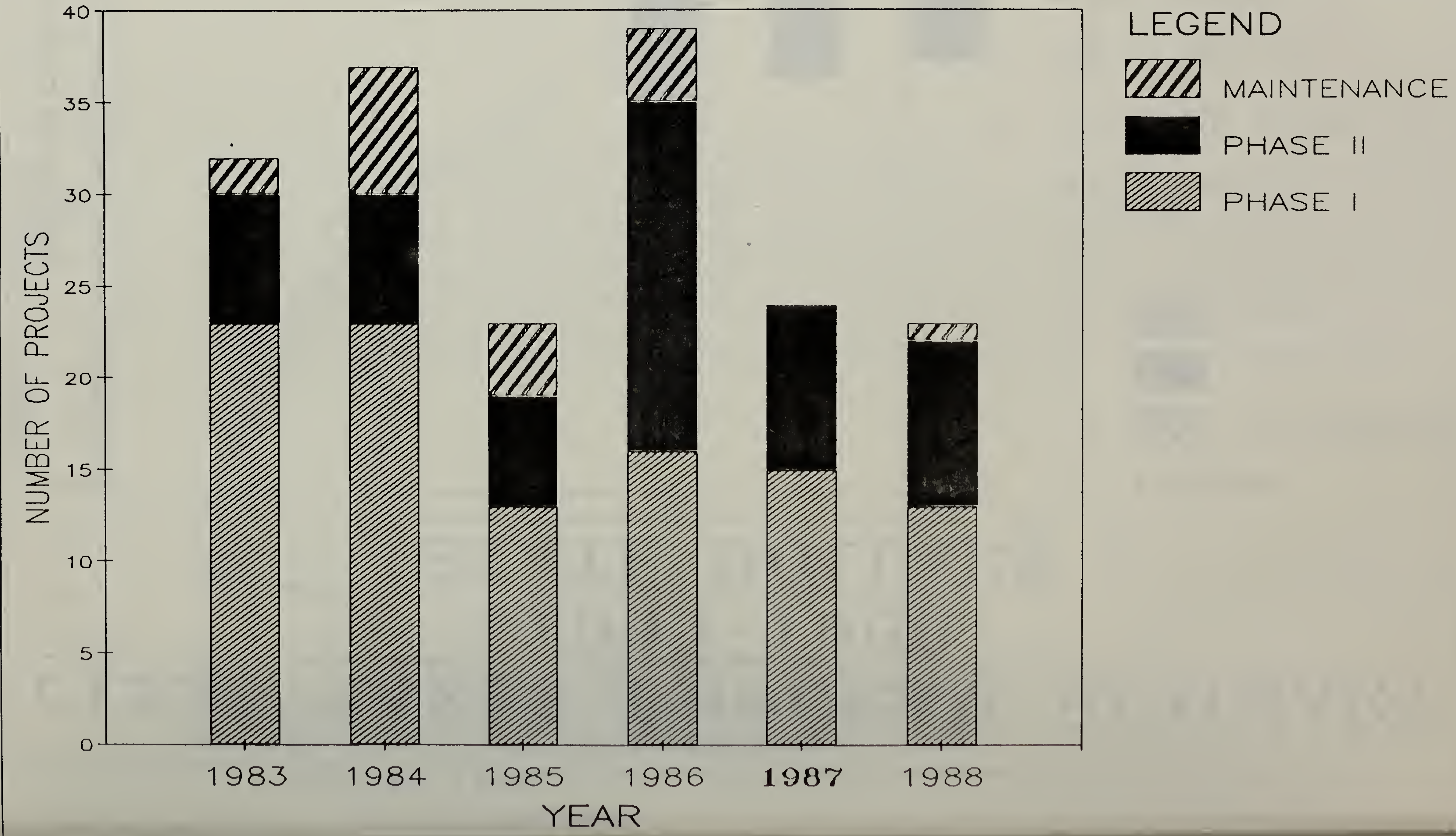
FY 1983

MUNICIPALITY	LAKE/POND	STATE GRANT(s)	LOCAL SHARE(s)
East Brookfield	Lake Lashaway	$100,254	$ 64,540
Gardner	Dunn Pond	312,500	312,500
Brookfield	Quaboag & Quacumquasit Pond	49,000	21,000

CLEAN LAKES PROGRAM SUMMARY

1983-1988

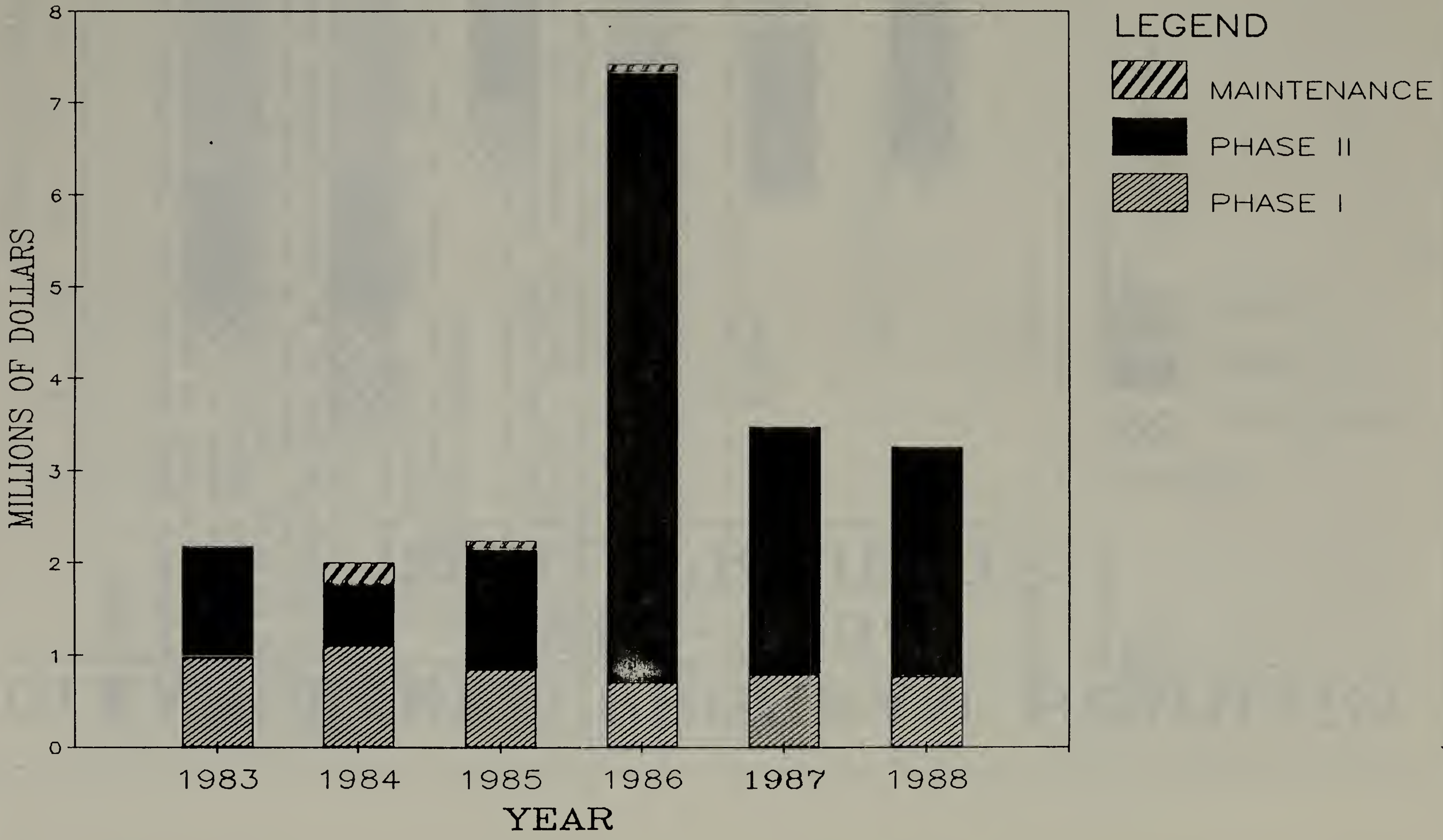
TOTAL PROJECTS



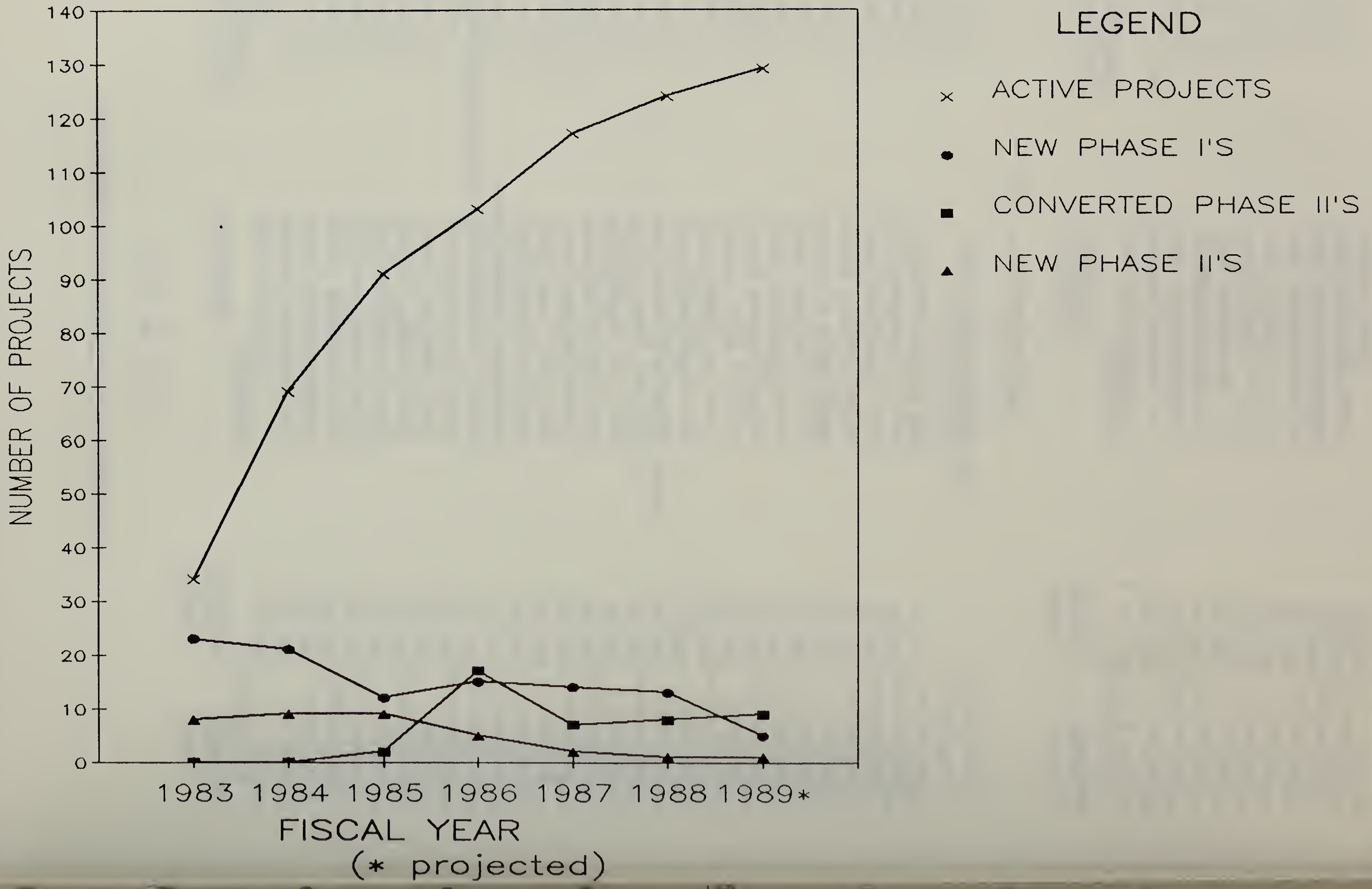
CLEAN LAKES PROGRAM SUMMARY

1983-1988

STATE DOLLAR$



CLEAN LAKES PROGRAM SUMMARY
TOTAL PROJECT GROWTH



GRANT ELIGIBILITY LIST CONTINUED)

FY 1983

MUNICIPALITY	LAKE/POND	STATE GRANT(s)	LOCAL SHARE(s)
North Reading	Martins Pond	33,000	17,000
Westfield	Pequot Pond	42,000	18,000
Wakefield	Lake Quannapowitt	52,000	22,500
Hopkinton	North Pond	36,750	25,750
Amherst	Puffers Pond	42,000	18,000
Sturbridge	Walker Pond	42,000	18,000
Wayland	Dudley Pond	72,750	72,750
Holliston	Lake Winthrop	15,750	6,750
Hamilton	Chebacco Lake	42,000	18,000
Monterey & New Marlborough	Lake Buel	47,000	47,000
Southwick	Congamond Lakes	47,000	47,000
Waltham	Hardy Pond	52,500	22,500
Yarmouth	Long Pond	52,500	22,500
Westborough	Chauncy Pond	31,500	13,500
Northborough	Bartlett Pond	52,500	22,500
Melrose	Ell Pond	35,000	15,000
Westford	Forge Pond	42,000	18,000
Belchertown	Metacomet & Arcadia Ponds	59,500	25,500
Holliston	Lake Winthrop	15,000	15,000
Sturbridge	Big Alum Pond	10,500	4,500
Springfield	Porter Lake	201,420	535,700
Milford	Cedar swamp Pond	28,000	12,000
Springfield	Lake Massasoit	52,500	22,500
Grafton	Lake Ripple	42,000	18,000
Lynn	Sluice & Flax Ponds	91,000	39,000
Wellesley	Morse Pond	21,577	21,577
Natick	Jennings Pond	35,000	15,000
Northampton	Willow Pond	65,000	65,000
Lynn	Floating Bridge Pond	35,000	15,000

GRANT ELIGIBILITY LIST

FY 1984

MUNICIPALITY	LAKE/POND	STATE GRANT(s)	LOCAL SHARE(s)
Natick	Lake Cochituate	$ 49,236	$ 49,236
Webster	Webster Lake	120,000	40,000
Worcester	Lake Quinsigamond	15,400	6,600
Springfield	Springfield Lakes	140,000	60,000
Dracut	Lake Mascuppic	24,500	10,500
Eastham	Great Pond	52,500	22,500
Athol	Lake Ellis	42,000	18,000
Sharon	Lake Massapoag	23,100	9,900
Sterling	East Lake Waushacum	10,950	3,650
Halifax	East Monponsett	42,000	18,000
Falmouth	Ashumet Pond	52,000	22,500

GRANT ELIGIBILITY LIST (CONTINUED)

FY 1984

MUNICIPALITY	LAKE/POND	STATE GRANT(s)	LOCAL SHARE(s)
Woburn	Horn Pond	52,500	22,500
Weymouth	Whitmans Pond	121,275	40,425
Brookfield	Lake Lashaway	37,500	12,500
Shrewsbury	Flint Pond	80,400	26,800
Dracut	Lake Mascuppic	16,500	5,500
Westminster	Wyman Pond	88,500	29,500
Hudson	Lake Boone	28,000	12,000
Sturbridge	Cedar Pond	619	206
Georgetown	Rock & Pentucket Ponds	77,000	33,000
Barnstable	Wequaquet & Long Ponds	105,000	45,000
Harvard	Bare Hill Pond	35,000	15,000
Arlington	Spy Pond	303,337	101,113
Franklin	Populatic Pond	$ 42,000	$ 18,000
Sturbridge	Cedar Pond	16,875	5,625
Holland	Hamilton Reservoir	30,000	10,000
Barnstable	Shallow Pond	49,000	21,000
Peabody	Browns Pond	52,500	22,500
Harvard	Bare Hill Pond	12,170	4,055
Plainville	Turnpike Lake	42,000	18,000
Charlton	Prindle Pond	1,875	625
Barnstable	Red Lily Pond	35,000	15,000
Peabody	Browns Pond	1,500	500
Arlington	Spy Pond	7,000	3,000
Granby	Forge Pond	42,000	18,000
Arlington	Hills Pond	31,500	13,500
Brookline	Halls Pond	42,000	18,000
Barnstable	Red Lily Pond	33,750	11,250
Worcester	Salisbury Pond	42,000	18,000
Cambridge	Blacks Nook	28,000	12,000
Oak Bluffs	Lagoon Pond	31,500	13,500

GRANT ELIGIBILITY LIST

FY 1985

MUNICIPALITY	LAKE/POND	STATE GRANT(s)	LOCAL SHARE(s)
Pittsfield	Pontoosuc	$405,373	$135,125
Pittsfield	Onota Lake	63,000	27,000
Worcester	Lake Quinsigamond	56,250	18,750
Wayland	Dudley Pond	540,000	180,000
Richmond	Richmond Pond	35,000	15,000
Townsend	Harbor Pond	56,000	24,000
Hardwick	Hardwick Pond	11,250	3,750
Worcester	Lake Quinsigamond	21,000	9,000
Winchester	Upper Mystic Lake	30,750	10,250

GRANT ELIGIBILITY LIST (CONTINUED)

FY 1985

MUNICIPALITY	LAKE/POND	STATE GRANT(s)	LOCAL SHARE(s)
Marlborough	Fort Meadow Reservoir	59,500	25,500
Dracut	Long Pond	49,000	21,000
West Newbury	Mill Pond	31,500	13,500
Framingham	Waushakum Pond	52,500	22,500
Holliston	Lake Winthrop	97,500	32,500
Westminster	Wyman Pond	19,500	6,500
Wilmington	Silver Lake	42,000	18,000
New Bedford	Buttonwood Pond	49,000	21,000
Millbury	Dorothy Pond	202,500	67,500
Hopkinton	North Pond	30,000	10,000
Lunenburg	Shirley Reservoir	63,000	27,000
Holbrook	Lake Holbrook	38,500	16,500
Newton	Bullough's Pond	40,600	17,400

ELIGIBILITY LIST

FY 1986

MUNICIPALITY	LAKE/POND	STATE GRANT(s)	LOCAL SHARE(s)
Worcester	Indian Lake	$ 22,400	$ 9,600
Woburn	Horn Pond	625,125	208,375
Amherst	Puffer's Pond	254,100	84,700
Weymouth	Whitmans Ponds	215,850	71,950
Sturbridge	Walker Pond	1,305,000	435,000
Groton	Lost Lake/Knops Pond	61,600	26,400
Worcester	Indian Lake	7,500	2,500
Pioneer Valley Pl. Com.	Pequote Pond	52,500	17,500
Brookfield	Quaboag/Quacumquasit Ponds	80,250	26,750
Yarmouth	Long Pond	150,000	50,000
Lynn	Sluice/Flax/Floating Bridge Ponds	1,125,000	375,000
Plymouth	Billington Sea	56,000	24,000
Reading	Martins Pond	22,500	7,500
Pembroke	Furnace Pond	59,500	25,500
Melrose	Ell Pond	150,000	50,000
Belchertown	Lake Metacomet/Lake Arcadia	18,750	6,250
Groton	Lost Lake/Knops Pond	18,750	6,250
Holland	Hamilton Reservoir	30,000	10,000
Westminster	Wyman pond	18,750	6,250
Monterey	Lake Buel	403,500	134,500
Easthampton	Nashawannuck Pond	56,000	24,000
Holden	Eagle Lake	150,000	50,000
Sturbridge	Big Alum Pond	114,773	38,257
Westborough	Lake Chauncy	228,000	76,000
Belchertown	Lake Arcadia	11,250	3,750

ELIGIBILITY LIST (CONTINUED)

FY 1986

MUNICIPALITY	LAKE/POND	STATE GRANT(s)	LOCAL SHARE(s)
Bedford	Fawn Lake	24,500	10,500
Wilmington	Silver Lake	50,400	21,600
Charlton	Prindle Pond	31,500	13,500
Pembroke	Little Sandy Bottom Pond	49,000	21,000
Pembroke	Oldham Pond	52,500	22,500
Pembroke	Stetson Pond	56,000	24,000
Hardwick	Hardwick Pond	21,000	9,000
Waltham	Hardy Pond	1,200,000	400,000
Winchester	Wedge Pond	56,000	24,000
Hamilton	Chebacco Lake	45,000	15,000
Wakefield	Lake Quannapowitt	495,000	165,000
Cohasset	Little Harbor Pond	28,000	12,000
Hingham	Foundry Pond	38,500	16,500
Springfield	Dimmock Pond	45,500	19,500

EXTENDED GRANT ELIGIBILITY LIST

FY 1986

MUNICIPALITY	LAKE/POND	STATE GRANT(s)	LOCAL SHARE(s)
Springfield	Porter Lake	$1,107,450	$369,150
Charlton	Little Nugget Pond	45,400	15,500
Belchertown	Lake Arcadia	4,875	1,625
Winchester	Davidson Park/Judkins/ Mill Ponds	70,000	30,000
Natick	Jennings Pond	333,750	111,250
Springfield	Lake Massasoit	1,242,900	414,300
Winchester	Winter Pond	42,000	18,000
Ayer	Grove Pond	52,500	22,500
Springfield	Van Horn Pond	66,500	28,500
Northborough	Bartlett Pond	12,750	4,250
Bellingham	Box Pond	56,000	24,000
Medway	Evergreen Cemetery Pond	7,000	3,000
Milford	Cedar Swamp Pond	663,750	221,250

GRANT ELIGIBILITY LIST

FY 1987

MUNICIPALITY	LAKE/POND	STATE GRANT(s)	LOCAL SHARE(s)
Brewster	Sheep Pond	$ 66,500	$ 22,500
Eastham	Great Pond	$ 85,500	$ 28,500
Weymouth	Whitmans Pond	495,975	165,325
Falmouth	Ashumet Pond	3,500	1,500
Methuen	Forest Lake	50,400	21,600
Stockbridge	Stockbridge Bowl	46,200	19,800
Ashfield	Ashfield Pond	53,200	22,800
Littleton	Long Pond	63,000	27,000
Tyngsborough	Lake Mascuppic	31,500	13,500
Wilbraham	Spectacle Pond	54,500	23,400
Eastham	Herring Pond	60,200	25,800
Gardner	Kendall Pond	52,500	22,500
Grafton	Flint Pond	24,500	10,500
Egremont	Prospect Lake	45,500	19,500
Hardwick	Hardwick Pond	21,000	9,000
Great Barrington	Mansfield Lake	42,000	18,000
Wilbraham	Nine Mile Pond	53,200	22,800
Springfield	Porter Lake	1,110,000	370,000
Lynn	Sluice/Flax/Floating Bridge Ponds	292,500	97,500
Ayer	Grove Pond	58,100	24,900
Brookfield	Quaboab/Quacumquasit Ponds	99,750	33,250
Westford	Forge Pond	111,750	37,250
Springfield	Van Horn Pond	70,000	30,000
Arlington	Hill's Pond	116,250	38,750
Barnstable	Red Lily Pond	371,595	123,865

EXTENDED GRANT ELIGIBILITY LIST

FY 1987

MUNICIPALITY	LAKE/POND	STATE GRANT(s)	LOCAL SHARE(s)
Springfield	Lake Massasoit	$1,242,900	$414,300
Mansfield	Sweet's Pond	44,100	18,900
Natick	Jennings Pond	33,750	11,250
Gardner	Parker Pond	62,300	26,700
Brookline	Halls Pond	345,150	115,050
Shrewsbury	Flint Pond	19,500	6,500
Hamilton	Chebacco Lake	45,000	15,000
West Tisbury	Tisbury Great Pond	56,000	24,000

GRANT ELIGIBILITY LIST

FY 1988

MUNICIPALITY	LAKE/POND	STATE GRANT(s)	LOCAL SHARE(s)
Wayland	Dudley Pond	$360,000	$120,000
Weymouth	Whitman's Pond	144,375	48,125
Hopkinton	North Pond	216,300	92,700
Barnstable	Hamblin's Pond	50,400	21,600
West Tisbury	Tisbury Great Pond	77,000	33,000
Edgarton	Edgarton great Pond	77,000	33,000
Andover	Pomps Pond	61,250	26,250
Southwick	Congamond Lakes	112,500	37,500
Marlborough	Fort Meadow Reservoir	827,000	355,000
Harvard	Bare Hill Pond	50,250	16,750
Holland	Hamilton Reservoir	30,000	10,000
Stoughton	Ames Long Pond	67,900	29,100
North Reading	Martin's Pond	29,400	12,600
Brookline	Hall's Pond	345,150	115,050
Boston	Scarborough Pond	65,800	28,200
Boston	Chandler Pond	56,000	24,000
Foxborough	Neponset Reservoir	63,000	27,000
Norton	Norton Reservoir	66,500	28,500
Gardner	Parker Pond	65,800	28,200
Mansfield	Sweet's Pond	54,600	23,400
Holyoke	Lake Bray	41,300	17,700
Belchertown	Metacomet/Arcadia Ponds	16,500	5,500
Natick	Jennings Pond	367,125	122,375

EXTENDED ELIGIBILITY LIST

FY 1988

MUNICIPALITY	LAKE/POND	STATE GRANT(s)	LOCAL SHARE(s)
Springfield	Long Pond	$ 49,000	$ 21,000
Worcester	Salisbury Pond	591,750	197,250
Springfield	Mona Lake	43,400	18,600
Springfield	Venture Pond	47,600	20,400
Springfield	Lake Massasoit	1,050,000	350,000
Lynn	Sluice/Flax/Floating Bridge Ponds	45,000	15,000
Mashpee	Santuit Pond	63,000	27,000
Stoughton	Pinewood Lake	21,000	9,000

Biology Section

Water Quality Standards Program

The Water Quality Standards Program is responsible for updating and revising standards, reviewing criteria, and classifying the waters of the Commonwealth. Standards are reviewed and updated where necessary every three years.

During FY1988 a complete revision package for the surface water quality standards was drafted. This draft underwent interagency review and was revised accordingly. Four public hearings were scheduled and conducted for public review of the proposal. Prominent among the revisions suggested are: 1) numeric criteria for toxics; 2) revised antidegradation waiver procedures; 3) hydrologic conditions for CSO abatement projects and; 4) revised temperature and dissolved oxygen criteria for various classes of water.

An Environmental Notification Form was filed with the Executive Office of Environmental Affairs regarding the proposed revisions. This affords additional public review and interagency coordination. Extensive comments are expected and will be addressed before the promulgation of new standards.

Biomonitoring Program

The Biomonitoring Program is an integral component of the statewide surface water quality monitoring program which is authorized by the Massachusetts Clean Waters Act, Section 27, Paragraph 5. The importance of biological monitoring is underscored in the "Declaration of Goals and Policy," Section 101(a) of Public Law 92-500 which stresses the need to restore the biological integrity of the nation's waters and achieve a water quality which provides for the protection and progagation of aquatic life.

The Biomonitoring Program comprises four areas of emphasis: Macroinvertebrate rapid bioassessment (MRB), fish tissue monitoring, toxicity assessment (including bioassays), and microbiology. Six full-time biologists and four seasonal employees conduct biological sampling and analyses to supplement other water quality monitoring and management programs and make recommendations to the Regulatory Branch with regard to the control of toxic effluents and thermal discharges through the NPDES permitting process.

Recent expansion of DWPC/TSB programs (e.g., Fish Toxics Monitoring and Coastal Surveys) and DEQE agency-wide initiatives (e.g., Question 4) have led to ever-increasing demands for biomonitoring resources. In fact, the number of biomonitoring projects doubled in the five-year period from 1984 to 1988 without a concomitant increase in staff. Furthermore, the Biology Section continues to support other water quality programs by conducting algae identifications and counts, and making chlorophyll determinations.

Biomonitoring personnel have taken several steps in an effort to address the expanding project load. These include: development of rapid bioassessment techniques which decrease field effort and reduce sample processing time; increased emphasis on short-term laboratory analyses such as toxicity tests (e.g., Microtox™); formulation of abbreviated, standardized reporting formats; and de-emphasis of lower-priority activities such as periphyton community assessments and stream classification surveys.

Program Summaries

Macroinvertebrates - Historically, this program has been the mainstay of biological monitoring at TSB. Currently one full-time freshwater invertebrate specialist and one seasonal employee comprise the program. Major efforts have been made to streamline methodologies through the use of the Macroinvertebrate Rapid Bioassessment (MRB). The MRB involves the use of semi-quantitative sampling methods designed to minimize laboratory time requirements for taxonomic identification and enumeration of aquatic macroinvertebrates. The MRB provides standardized procedures for assessing the impacts of organic and toxic pollutants on aquatic invertebrates; and it provides the basis for making relative comparisons pertaining to water quality conditions between sampling stations and/or to document long-term trends at fixed sites. In FY'88, rapid macroinvertebrate bioassessments were conducted in three river basins at a total of thirteen (13) sampling sites (see Table below). In addition, cast-off midge (Chironomidae) pupal exuviae were collected along the stream banks at four MRB sites, on an experimental basis, to evaluate a water quality assessment technique involving the presence of "indicator" midge assemblages. This methodology will be evaluated as to its utility and appropriateness for incorporation into the existing macroinvertebrate monitoring program.

Fish - This is a highly visible program which, when edible fish tissue is analyzed, provides information relative to human health risks associated with fish consumption. Predictably, the demand for fish tissue analyses is great and is expected to continue to increase in light of Question 4.

The existing TSB staff for fish monitoring consists of one full-time fishery biologist aided by one seasonal employee. Field work depends entirely on additional resources provided by the Massachusetts Division of Fisheries and Wildlife (MDFW) which supplies a vehicle, sampling equipment including nets and electroshocking devices, and one employee each summer. The fish toxics program cannot presently meet its sampling and analytical goals without relying on input from MDFW.

Fish tissue monitoring is conducted to assess the levels of toxic contaminants in freshwater fish, identify water bodies where those levels may impact human health, and identify waters where toxic chemicals may impact fish and other aquatic life. Fish surveys generally have been restricted to water bodies where wastewater discharge data or previous water quality studies have indicted potential toxics problems. In FY 1987, fish sampling was conducted in nine (9) water bodies throughout Massachusetts (see Table below).

Microbiology - One full-time biologist and one seasonal employee plan and conduct bacteriological studies in addition to maintaining the algae and chlorophyll laboratory. Increased demand for site assessments using bacterial indicators and source differentiation of the fecal streptococci have come primarily from the Marine section but are anticipated in future nonpoint assessment work, as well. In FY 1988, several bacteriological indicators including, but not limited to, the source differentiation of the fecal streptococci bacteria were used to assess water quality conditions and determine sources of fecal contamination in the North River and Westport River.

Toxicity - Two staff members are currently assigned to this program. The toxicity testing capabilities of the Biomonitoring Program presently include one Microtox^{TM} Toxicity Analyzer and an R&D Services Contract with Envirosystems, Inc. of Hampton Falls, New Hampshire to provide up to 100 acute and 25 chronic toxicity tests using fathead minnows and dapnids. In FY 1988, 59 effluent and 29 instream samples were screened for toxicity with the Microtox^{TM} System. Furthermore, the services contract was used to provide additional toxicity test as part of the 1988 intensive water quality and wastewater discharge surveys. Other activities included input to policy development for controlling toxic pollution for use in water quality standards and making recommendations for toxicity testing requirements in NPDES discharge permits. A total of twenty-eight (28) draft NPDES permits were reviewed in FY'88.

As more and more discharge permits are being issued with toxicity monitoring requirements, an increased amount of time is also being spent reviewing the results of those toxicity tests. These regulatory functions are a new area of involvement for the Biomonitoring Program that has traditionally acted more as a support program to other water quality monitoring programs. Use of biological methodologies in the discharge permitting program has provided biologists an opportunity to become more involved with the regulatory process, but has also placed new demands on existing resources.

In 1985 a decision was reached to expand the toxicity testing program at the TSB to include a laboratory facility in which to conduct standard EPA freshwater toxicity tests. Due to a severe lack of existing office and laboratory space, it was decided to house the laboratory in an office-type trailer. Design and specifications were completed by personnel of the TSB Biomonitoring, Research and Demonstration programs and subsequently put out for bid by private contractors. The completed laboratory trailer was delivered in August, 1987. It is expected to be operational sometime in 1989 following site preparation, installation and plumbing and electrical system hookups.

Biomonitoring Field Surveys

The following table lists the FY 1988 biomonitoring field surveys:

Water Body	Survey Type
Connecticut River	Fish Toxics Monitoring
Dorothy Pond (Millbury-Worcester)	Fish Toxics Monitoring
Shubael Pond (Barnstable)	Fish Toxics Monitoring
Assabet River	Macroinvertebrate
Charles River	Macroinvertebrate
Wading-Rumford-Three Mile rivers	Macroinvertebrate
Little Pond (Belmont)	Fish Toxics Monitoring
Millers River	Fish Toxics Monitoring
Blackstone River (Riverdale Impoundment)	Fish Toxics Monitoring
North River	Bacteriological

Water Body	Survey Type
Westport River	Bacteriological
Norton Reservoir (Norton)	Fish Toxics Monitoring
Barrowsville Pond (Norton)	Fish Toxics Monitoring
Oakland Impoundment (Taunton)	Fish Toxics Monitoring

Biomonitoring Reports and Memoranda

The following reports and technical memoranda were completed during FY 1988:

Reports

- 1987 Muddy Pond Evaluation

- Biomonitoring Program Standard Operating Procedures 1988

Technical Memoranda

- 1986 Merrimack River Fish Toxics Monitoring
- Macroinvertebrate Rapid Bioassessment of the North Attleborough POTW Discharge
- Sudbury River Macroinvertebrate Rapid Bioassessment
- PCBs in Millers River Macrobenthos
- 1986 Dimmock Pond Fish Toxics Monitoring Results
- 1986 Seven Mile and Bungay Rivers Fish Toxics Monitoring
- 1987 Echo Lake Fish Toxics Monitoring
- 1986 Hoosic River Fish Toxics Monitoring
- 1987 Bailey Pond Fish Toxics Monitoring
- Summary of Toxicity Testing of Sewage Treatment Plant Effluents
- Toxicity Test Results of Industrial Discharges
- 1987 French River Study - Microtox™ Results and Instream Toxicity

Participation in Conferences and Seminars

The following biomonitoring program personnel attended and/or presented papers at professional conferences or technical workshops during the year:

Several staff members attended the annual meeting of the New England Association of Environmental Biologists (NEAEB) in Newport, RI. Gerald Szal presented a paper entitled "Monitoring Chlorine Toxicity" and Robert Maietta presented a poster on the Massachusetts Fish Toxics Monitoring Program.

- Joan Beskenis presented "Examination of Bacterial Sources of Fecal Contamination to the North River: Curtis Crossing to First Herring Brook" to the North River Commission.

- Joan Beskenis attended the International Water and Wastewater Conference in Newport Beach, California.

- Robert Nuzzo and Robert Maietta attended the USEPA Symposium on Surface Water Monitoring in Annapolis, MD.

- Arthur Johnson attended the 14-week IGS-Tier II Management Training Program.

Research and Demonstration Program

The Division of Water Pollution Control's Research and Demonstration Program is authorized by MGL c. 21 s. 38 and is currently funded under the provisions of c. 286 s. 12, Acts of 1982 and c. 472, Acts of 1984. The legislative mandate of this program is to conduct "research and demonstration projects relating to water pollution control and other scientific and engineering studies relating to environmental quality." Also authorized is an In-Service Training Program in "methods of water pollution control" and for "conduct or support programs for the training of waste treatment plant operators."

The Research and Demonstration section develops new projects; executes contracts, interagency service agreements and cooperative state/federal agreements; monitors ongoing projects; and transfers technology developed in completed projects. Section personnel also manage the In-Service Training Program by securing approvals of training requests, maintaining records, and processing reimbursement requests.

There are thirty active projects at the end of the fiscal year being monitored. They are valued at $3,318,729.50 at cost to the Division with $3,090,351.00 in additional matching funds. Seven projects were completed with another sixteen in the final stage. Nine new projects were started this year out of 77 research proposal evaluated.

The In-Service Training Program obtained 222 application approvals for 117 students. Total cost of the program was $64,517.79 with an average cost per student of $546.76.

The program lost one person due to a much deserved promotion with no replacement, due to fiscal limitations. This has severely impacted the section's ability to adequately manage the current and planned research projects. Work has been redistributed to compensate.

An effective R&D program must concentrate effort on current and anticipated research areas of high priority to the Division and Department. Two areas are now considered high priority; estuarine/marine studies and groundwater related studies.

NEW PROJECTS FOR FISCAL YEAR 1988

Project NO.	Title	Researcher	DWPC Cost
87-12	Coastal Nonpoint Pollution Management study	Metcalf & Eddy	$130,000
88-01-1	Predicting Wetlands Influence	USGS	$155,000
88-01-2	Induced Infiltration	USGS	$128,200
88-02	Stream Gaging	USGS	$ 65,000
88-03	Silviculture and Nonpoint Pollution	Umass, Amherst	$ 56,761
88-04	Red Lily Pond via Reverse Layering	K-V Associates	$ 39,578
88-05	Estuarine Index of Biotic Integrity	Umass, Amherst	$116,732
88-06	Groundwater Risk Assessment	USGS	$ 10,000
88-09	Design Revolving Loan Program	Smith Barney	$500,000

ONGOING PROJECTS FOR FISCAL YEAR 1988

Project NO.	Title	Researcher	DWPC Cost
80-13	In-Service Training	Various	$ 75,000
86-06-01	Quality of Precipitation II	USGS	$149,850
86-06-02	Reaeration II	USGS	$192,500
86-06-03	Cape Cod Radar	USGS	$ 64,000
87-01-01	Statistical WQ Standards	UMADCE	$ 56,499
87-01-02	Heavy metals in WWTP's	UMADCE	$ 64,149
87-01-03	Anerobic Digestion Toxicity	UMADCE	$ 75,699
87-01-04	Toxicity Screening	UMADCE	$ 55,899
87-01-05	Halogenated Non-Volatile Org	UMADCE	$ 93,999
87-01-06	Low Level Ozonation	UMADCE	$ 69,089
87-02	Monitoring Toxicants	LES	$240,000

Project NO.	Title	Researcher	DWPC Cost
87-03	Bio Assessment of Chlorine	UMADPH	$ 94,754
87-05-01	Estimating Low Flows	.USGS	$207,000
87-05-02	Groundwater Quality	USGS	$ 53,800
87-05-04	Cape Cod GW Modeling	USGS	$ 77,500
87-06	Operator Tng Feasibility Stdy	Burford	$ 23,700
87-07	Toxicity Testing Services	Enviro Systems	$ 94,050
87-09	GIS Work stations	Div Water Supply	$113,430
87-10	Marine Algae Monitoring	SMU	$ 55,113
87-11	Apply Remote Sensing to WP	UMADFWM	$ 48,520
87-15	Buzz Bay Plankton, Fish, WQ	SMU	$178,982

TECHNICAL PROJECT REPORTS PUBLISHED IN FY 1988

PROJECT NUMBER	REPORT
80-28	Kofke, C.L. 1987. Installation and Evaluation of a Waterless Toilet. Massachusetts Audubon Society, Laughing Brook Education center, Hampden. ix + 49 p.
83-11-13	Parker, G.W. and F.B. Gay. 1987. A Procedure for Estimating Reaeration Coefficients for Massachusetts Streams. Water Resources Investigations Reports 86-4111. U.S. Geological Survey, Boston. iv + 34 p.
83-31-1	Switzenbaum, M.S. and S.J. Komisar. 1986 Biological Phosphorus Removal Using a Fixed Film Batch Reactor. University of Massachusetts, Department of Civil Engineering, Amherst. vi + 50 p. + appendix.
83-31-4	Billa, M. and R.R. Noss. 1987. Septic System Maintenance Management. University of Massachusetts, Department of Civil Engineering, Amherst. vi + 50 p. + appendix.
83-31-6	Parks, C.A. 1987. Joint Action of Toxicant Mixtures on Daphnids - Literature Review. University of Massachusetts, Department of Civil Engineering, Amherst. vi + 57 p.

84-26	Hemond, H., K. Eshleman, K. O'Connor, B. Gordesky, and D. Chen. 1987. Surface Hydrology and Wetlands Roles in Acid Deposition on the Bickford Pond Watershed. Massachusetts Institute of Technology, Department of Civil Engineering, Cambridge. v + 71 p.
87-01-02	Bacon, G.D. 1988. Variation of Heavy Metals Concentrations in Municipal Wastewater Treatment Plant Sludges - Literature Review. University of Massachusetts, Department of Civil Engineering, Amherst. vi + 63 p.
87-01-05	Billa, M.E. and D.W. Ostendorf. 1988. Sediment Core Samplers. University of Massachusetts, Department of Civil Engineering, Amherst. vi + 23 p.

R & D IN-SERVICE TRAINING PROGRAM

Financial Actions:

Funds Budgeted for FY 1988: $ 75,000

Total Funds Obligated for FY 1988: $ 64,517.79

Average Cost per Student: $ 546.76

Student Actions:

Total Number of Applications Approved and Processed: 222

Total Number of Courses Approved and Processed: 262

Total Number of Students (DWPC): 87
(Other Divisions): 30
Total: 117

Significant Events:

07/01/87	$ 50,000 is budgeted for FY 1988.
09/09/87	Memo submitted requesting policy decision concerning No-Show employees in the DWPC R&D In-Service Training program.
10/07/88	A separate Purchase Order Number, #5381-8280-350, is set up to reimburse the Bureau of Human Resource Development with a budget limit of $ 10,000.
11/02/87	Notification letter is sent to all employees with less than $ 1,000 remaining in the maximum student reimbursement limit of $ 3,000.

11/13/87	An additional Purchase Order Number, #5381-8182-409, carried over from FY 1987, is set up for student reimbursement at a maximum budget limit of $ 7,040.68.
12/16/87	All employee applications are placed on hold because of budgeted funds being fully committed for FY 1988.
01/06/88	An additional $ 25,000 is allocated in order to increase the In-Service Training Program Budget from $ 50,000 to $ 75,000.
01/22/88	Separate Purchase Order Numbers for Student (#5381-8028-350) and Vendor (#5381-8182-350) reimbursements are set up.
04/20/88	The DWPC R&D In-Service Training Program is notified that MMARS will require an individual Purchase Order Number for each Student and each Vendor reimbursement for FY 1989.
05/10/88	Comptroller's memo, dated 4/13/88, requires the Bureau of Human Resource Development be reimbursed at the time of their, BHRD, letter of confirmation and not after course completion.

Projected Actions for FY 1989:

Proposed Budget: $ 100,000

Projected Total Funds Obligated: $ 90,000

Project Total Number of Applications: 250

Projected Total Number of Students: 150

EDP Section

EDP efforts were expended in a variety of areas during the year.

Database development: A finalized dBASE III Plus version of PALIS was shipped to all Clean Lakes Consultants. Two datasets utilizing this version were received. Seasonal employees from the Lakes section entered 1988 lakes data into this version as well.

The Marine database continued to be very active both with data entry and development/modification.

The River Basin database structure was completed but work remains to be done in finalizing a report writing section.

User assistance and system management: As a result of acquisition and rental, the section was responsible for up to 11 microcomputers and numerous peripherals. System maintenance requirements were generally routine (two in-house repairs were effected) as most of the equipment has been trouble-free. The section set-up and configured three systems including the PC-ARC/INFO-based GIS system. A number of new software and hardware-based applications were installed especially in the graphics area. Monthly usage statistics were compiled.

ADP plan and AF29s: Based on the FY87-88 ADP plan, 4 Compaq Deskpro 286 systems were acquired. Two were for general purpose use, one was dedicated to GIS efforts, and one was provided for the Lawrence Experiment Station. Work was begun on another GIS AF29 which would enhance our GIS system and provide a GIS system for the Boston office. Contracts for timesharing services and certain maintenance agreements were routinely renewed.

LES Technical Assistance: The EDP section provided technical assistance to LES in setting up the PC provided for them, as well as a dBASE-based data reporting system for TSB water quality data. By receiving data in dBASE format, it can easily be incorporated into the appropriate TSB-maintained database.

Software and datasets received: Four datasets containing water quality data collected by consultants under the Clean Lakes Program were received for inclusion into PALIS. An updated version of QUAL2E was received and installed for usage.

GIS: On-the-job training in GIS using PC-ARC/INFO was begun in the spring of 1988 followed by intensive classroom training in the fall for one staff member of the EDP section. Skills and techniques developed will be passed on to other staff members as they begin to utilize the GIS system for their projects.

Using various coverages received from the Hazardous Waste Site Facility Council, a number of modifications and updates were made to facilitate usage.

Numerous GIS committee meetings were attended. Assistance to Water Supply personnel in the set-up and use of their GIS system was provided.

Miscellaneous: The EDP seasonal employee was utilized to enter data for various analytical and graphical applications and to update certain worksheets. The seasonal employee assisted in many of the office's water quality surveys.

PC usage for the fiscal year is shown graphically on an attached sheet.

Publications and Presentations

Patricia E. Austin:

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CHEMICAL COSTS REIMBURSEMENTS

This program - Chemical Costs Reimbursements - within the Division of Water Pollution Control of the Department of Environmental Quality Engineering was established through the passage of Chapter 510 of the Acts of 1980 (An Act authorizing reimbursement by the Commonwealth to cities, towns and districts for the annual costs of chemicals for the operation and maintenance of water pollution control facilities). This legislation had previously allowed cities, towns and sewerage districts to apply to the Division of Water Pollution Control for fifty(50) per cent reimbursement of the costs of chemicals utilized for chlorination, sludge dewatering, odor control, and advanced waste treatment for phosphorous removal and nitrification during the operation and maintenance of a water pollution abatement facility.

The operation of the program had been established in the following manner:

1. The eligible chemical costs incurred at a wastewater treatment plant shall be from the preceding fiscal year period and shall be ascertained for the period by each city, town or sewerage district

2. These ascertained costs would be submitted by the eligible municipal bodies to the Division of Water Pollution Control for verification as to accuracy and eligibility - before the end of the subsequent calendar year. Reimbursements under this program shall be paid from either the annual or supplementary budgets under budgetary control item # 2240-0500. The funding mechanisms as stated in the enabling legislation cites the Local Aid funding process as stated in Section 18A of Chapter 58 of the Massachusetts General Laws. Once the amounts of monies necessary for reimbursement has been determined, normal practices and procedures as outlined by the Comptroller and Treasurer of the Commonwealth were followed and the reimbursement procedures took place.

The program had been established on an annual basis upon the yearly submission of costs incurred by a governmental entity during the previous fiscal year.

The request for reimbursement from each eligible city, town, or sewerage district must be submitted to the Division of Water Pollution Control utilizing the following procedure:

1. The submitted list must designate the types of chemicals, the amounts of chemicals and the unit costs of the chemicals used.

2. The costs must be certified by the auditor in cities and districts and by the accountant in towns. Certification must contain the statement that the types, amounts and costs of the chemicals pertain only to those chemicals used in a wastewater treatment facility for chlorination, sludge dewatering, odor control and advanced waste treatment for nitrification and phophorous removal during the operation and maintenance of said wastewater treatment facility.

3. Once verified by the Division of Water Pollution Control as eligible for reimbursement and sufficient funds for payment have been provided by both the Budget Bureau of the Department of Administration and Finance and the General Court, a list of cities, towns and sewerage districts and the amount of reimbursement to be provided to each was submitted to the Comptroller and Treasurer of the Commonwealth for payment.

Chapter 292 of the Acts of 1982 (An Act relative to the annual reimbursement of the acts of chemicals for the operation and maintenance of certain water pollution control facilities) made odor control chemicals eligible for the program.

During the fiscal period July 1, 1985 through June 30, 1986 the following cities, towns and sewerage districts would have been eligible for the below listed reimbursements.

The monies for the anticipated reimbursements to the eligible cities, towns and sewerage districts with the dollar amounts (before verification) would have been provided as follows:

Adams	$ 4,985.
Amesbury	6,398.
Amherst	20,086.
Athol	4,971.
Attleboro	52,975.
Ayer	15,219.
Barnstable	20,638
Belchertown State School	231.
Billerica	15,845.
Blackstone	944.
Bridgewater	2,118.
Brockton	69,302.
Buckland	438.
Charles River Pollution Control District	47,639.
Charlton	220.
Chicopee	12,261.

Cohasset	6,044
Concord	3,020
Dartmouth	12,566
Deerfield	1,438
Douglas	1,343
Dudley	334
East Bridgewater	375
Easthampton	16,991
Edgartown	289
Erving - Erving Center - 51,949 Millers Falls - 5,285	57,234
Fairhaven	17,023
Fall River	139,143
Falmouth	359
Fitchburg	136,380
Gardner	2,054
Gloucester	9,847
Grafton	6,759
Great Barrington	16,900
Greater Lawrence Sanitary District	123,573
Greenfield	12,607
Hadley	372
Hardwick	485
Haverhill	69,476
Holyoke	49,027
Hoosac Water Quality District	34,778
Hopedale	8,443
Hudson	6,944
Hull	2,692
Huntington	701
Ipswich	6,226
Lee	640
Leicester Water District	303
Lenox	2,366
Leominster	56,482
Lowell	18,902
Lynn	49,567
Manchester	1,307
Mansfield	11,384
Marion	1,133
Marlboro	98,864
Marshfield	2,431
Massachusetts Water Resource Authority-Sewer Div.	1,265,227
Mattapoisett	995
Maynard	5,011
Medfield	8,318

Merrimac	163
Metropolitan District Commission-Watershed Mng. Div.	2,615
Middleboro	10,200
Milford	11,840
Millbury	989
Millis	No request
Montaque	8,018
New Bedford	59,406
Newburyport	10,149
Northhampton	33,433
North Attleboro	23,382
Northbridge	3,576
North Brookfield	600
Northfield	637
Orange	2,099
Oxford - Rochdale Sewer District	298
Palmer	11,382
Pepperell	872
Pittsfield	31,905
Plymouth	4,482
Rockland	14,634
Rockport	3,966
Royalston	199
Russell	422
Scituate	5,865
Shrewsbury	4,663
Somerset	13,645
Southbridge	7,771
South Essex Sewer District	162,310
South Hadley	16,191
Spencer	517
Springfield	307,037
Stockbridge	1,102
Sturbridge	125
Sunderland	218
Swampscott	7,783
Taunton	42,783
Templeton	54,034
Upper Blackstone Water Pollution Abatement Dist.	42,635
Upton	360
Uxbridge	2,489
Ware	10,298
Wareham	10,378
Warren	940
Wayland-Sudbury Septage District	5,643
Webster	17,706
Westboro	2,158
Westfield	18,635
Wilbraham	4,216
Winchendon	364
TOTAL	3,516,083

This procedure has been changed by legislative action initiated by the Department of Administration and Finance and incorporated into the budget process addressed in the annual budget for fiscal year 1988-Chapter 199 of the Acts of 1987. The Fiscal Year 1988 Cherry Sheet is based upon the Legislative Resolution passed in February, 1987 authorizing the "new resolution aid" programs and the appropriations for other disbursement programs outlined in Chapter 199 of the Acts of 1987. The chemical cost reimbursement program has been added to each municipality's "new resolution aid". This has been added to the Cherry Sheet Line Items-Additional Assistance (Line C.9). The chemical cost reimbursement program for each municipality operating a wastewater treatment facility now follows the reimbursement figure established for the period July 1, 1984 through June 30, 1985. All further reimbursements through the chemical costs reimbursement program will utilize the "Needs-Based Local Aid Formula for Fiscal Year 1988". The underlying concepts and changes made for fiscal year 1988 are described in the Governor's budget for fiscal year 1988 filed with the legislature as House 1 of 1987. The Cherry Sheet item C.3 Water Pollution Abatements General Law Chapter 21 section 37 (Offset Item) will be funded each year as a consolidated figure contained in C.9 Additional Assistance General Fund Appropriation to Local Aid Fund.

In essence the chemical cost reimbursements to eligible cities and towns for the fiscal period July 1, 1986 through June 30, 1987 will be the same as the figure received during the eligiblity period of July 1, 1984 through June 30, 1985. This reimbursement amount will not be a direct payment but will be included in the community's Cherry Sheet receipts on a quarterly basis. The reimbursement under the chemical cost program for the period July 1, 1987 through June 30, 1988 will follow the same method of Cherry Sheet receipts. All future reimbursements will be developed utilizing the Cherry Sheet Approach.

The Division of Water Pollution Control will not be finalizing any reimbursements for the eligiblity periods of July 1, 1985 through June 30, 1986 and July 1, 1986 through June 30, 1987. Future reimbursements, after July 1, 1987, will be received by the eligible cities and towns through the Cherry Sheet mechanism.

The reimbursements to eligible sewerage districts has been addressed in Chapter 199 of the Acts of 1988 in budgetary control item 0611-5500 under the terms and provisions depicted for public entities. Sewerage districts will receive a reimbursement amount for the period July 1, 1985 through June 30, 1986 and for the period July 1, 1986 through June 30, 1987 based upon budgetary control item 2240-0500 of Chapter 142 of the Acts of 1986. Funds for the reimbursement to the eligible sewerage districts are provided in Chapter 164 of the Acts of 1988 under budgetary control number 0611-5500. The Division of Water Pollution Control will notify the Treasurer's Office to process the payments to these public entities as in past years.

Mandatory Certification of Wastewater Treatment Plant Operators

Massachusetts had conducted a voluntary certification program in conjunction with the New England Water Pollution Control Association for many years.

On August 26, 1970 then Governor Sargent signed into law an Act Establishing a Board of Certification of Operators of Wastewater Treatment Facilities. This Act required the following.

1. That the nine(9) member Board of Certification of Wastewater Treatment Plant Operators be established to ensure the proper management, operation and maintenance of wastewater treatment facilities.

2. That a fee of ten(10) dollars be required for the original certificate of competency and an annual fee of five(5) dollars be required for renewal thereafter. A new fee structure was established during fiscal year 1981 by the Department of Administration and Finance through passage of Chapter 499 of 1980 (An act increasing certain licensing fees) and Chapter 572 of 1980 (An Act authorizing the Commissioner of Administration and Finance to set fees and charges paid to the Commonwealth) this new fee structure has been established as twenty (20) dollars for the original certificate of competency (examination fee) and an annual fee of twelve(12) dollars for renewal thereafter. A new fee of fifteen (15) dollars was established for the issuance of emergency certification.

3. That no person, corporation, city, town or district shall operate a treatment facility used for treating, neutralizing or stabilizing wastewater from homes, public buildings, commercial and industrial establishments unless the person in charge of the treatment facility has a certificate of competency issued by the Board of Certification of Wastewater Treatment Facilities. The present board policy also requires that the Assistant Chief Operator, Shift Operators and/or Week-End Operators, if utilized, must have a certificate of competency. This requirement for mandatory certification applies to municipal, industrial pretreatment facilities discharging to municipal sewerage systems and ground water discharge facilities emptying into the ground water of the Commonwealth. Thus all wastewater treatment facilities discharging to either ground or surface waters of the Commonwealth must have certified operators in the positions of Chief Operator, Assistant Chief Operator, Shift Operators and/or Week-End Operators, if utilized. Violation of the mandatory certification requirement is punishable by a fine of not more than twenty five hundred (2,500) dollars per day of such violation.

4. That any individual, who files an application for a certificate of competency prior to July 1, 1972 and with such date being extended by the General Court during the legislative year of 1973 to July 1, 1974 and provided further that one was employed as an operator at a wastewater treatment facility in Massachusetts on July 1, 1971 would be eligible for certification under provisions of the Grandfather's Clause of the enabling legislation. All others seeking certification shall pass an examination prepared by the Board of Certification of Wastewater Treatment Plant Operators or shall be granted certification by means of a reciprocal agreement amongst the various states prepared and approved by the abovementioned Board of Certification.

5. The Board through its Rules and Regulations has set the following policies, "The Chief Operator is in responsible charge during all working hours of the wastewater treatment facility". "In any Grade four(4) or lower wastewater treatment facility which has an eight(8) hour day, seven(7) days per week operation, the chief operator must have a certification rating equal to the grade of the plant, and during the absence of the operator in charge, the plant must have a certified operator (assistant chief operator) with a certification rating not less than one grade below the rating of the facility and for those Grade four(4) or lower facilities which utilize shift and or week-end operators, the shift and week-end operators also must have a certification rating not less than one grade below the rating of the facility. For Grade five(5), six(6), or seven(7) plants the operator in charge must have a certification rating equal to the grade of the facility. During his absence, the operator in charge (assistant chief operator) also must have a certification rating equal to the grade of the facility. If shift and/or week-end operators are utilized, the shift and/or week-end operators must have a certification commensurate with the duties one is performing at any given time. These ratings are determined by the Board based upon information submitted by the facility.

6. The Board of Certification of Operators of Wastewater Treatment Facilities has established a set of rules and regulations in addition to application forms for the certification program.

7. The Honorable Governors of the Commonwealth have appointed the members who serve on the Board of Certification of Wastewater Treatment Plant Operators. The Board holds regulatory scheduled monthly meetings to conduct business properly before the Board and to establish policy as necessary. The board further administers two(2) examinations per calendar year. These examinations are held in January and July of each year. Despite the restrictions and budgetary constraints imposed by Proposition 2½ and other local, state and federal fiscal constraints, the Board of Certification of Wastewater Treatment Plant Operators clearly states that the wastewater treatment facilities within the Commonwealth must continue to meet the requirements of mandatory certification and that these facilities must be operated and maintained in accordance with the laws of the commonwealth.

Chapter 606 of the Acts of 1983 transferred the Board of Certification of Wastewater Treatment Plant Operators from the Division of Registration in the Executive Office of Consumer Affairs to the Division of Water Pollution Control of the Department of Environmental Quality Engineering within the Executive Office of Environmental Affairs. This very important legislation now allows the Board to more properly administer its legislatively mandated affairs, decisions and policies. The budgetary, administrative and financial duties of the Board can now be carried on by the personnel directly responsible for conducting the affairs of the Board. Considerable changes in the collection of renewal fees, examination preparation and notification, the review process and in-house methods for the administration of the Board day-to-day affairs are being realized. This change has now resulted in a more efficient operation of the Board and is now a corner stone of the Board's activities during the time period for this report.

The Board established separate examinations for certification of operators employed at municipal, industrial and combined wastewater treatment facilities. These examinations are provided to the Board by its educational consultant-The Association of Boards of Certification (ABC). The examinations are based on a "need-to-know", job specific format.

The Board has developed a program to review and oversee the contract operations mode of operations and maintenance at wastewater treatment facilities which utilize this new concept.

The certification of industrial pretreatment wastewater treatment plant operators by means of grandfather certification is now being implemented by the Board. The deadline for receipt of these applications has been extended to June 30, 1988.

The Board completed its 1987 renewal program during this reporting period and developed the means to implement the 1988 renewal program.

As of June 30, 1988 the Board has certified under the aspects of the orginal Grandfather's Clause, reciprocal agreements and examinations three thousand four hundred ninety two (3,492) operators.

MASSACHUSETTS WATER QUALITY CONDITIONS AND TRENDS

INTRODUCTION

Water is the principal resource which all forms of life depend on for survival. Clean water is essential for human life, and in Massachusetts, increasingly large quantities have been necessary to sustain a growing population and economy.

Per capita consumption of watr for personal use exceeds 150 gallons per day and per capita industrial use exceeds 600 gallons per day. Water is used for such needs as: drinking, bathing, washing cloths, cooking, and removing domestic wastes; as well as for products and services that sustain the intensive resource-use levels of our economic way of life.

An environmental inventory of Massachusetts records an abundance of potentially available fresh and salt water resources, which includes rivers, streams, lakes, wetlands, subsurface aquifers, as well as coastal-estuarine waters. Especially during the last 100 years, the vast growth in human population, plus vastly increased use and demand for natural resources from economic activities, have resulted in an exponential growth in demand and uses for available water.

Increased demand for water in recent decades has resulted in water shortages, bans and other water supply emergencies becoming commonplace in communities and regions statewide. This is living proof that, even in Massachusetts, with its abundant rainfall and watershed capacities, water is definitely a limited resource.

Increased awareness of public health, as well as increased awareness that water is valuable and vital to every aspect of our undertakings have helped to generate a great increase in public concern about overall water quality.

In order to meet the needs of increases in population and economic activity, we must facilitate the most efficient use of the total water resource base. Proper treatment of wastewater is of highest priority in extending the usability of the total water base.

Greater water usage from increased population and economic activity has resulted in vast increases in wastewater discharges during the past few decades. These improperly treated discharge volumes have resulted in widespread deterioration in the quality of waters throughout the Commonwealth.

Through an aggressive wastewater treatment construction program, begun by the Division in 1972 and continued into the present, effective control of wastewater pollution dischages has been largely accomplished. This has greatly increased the usability of the total water budget for personal and industrial uses, while enhancing public health and the overall quality of the environment in the Commonwealth.

The Past

"Floating masses of paper sludge, belly-up fish, rotting in the mid-day sun, putrescent odors emanating throughout communities across the Commonwealth from untreated sewage discharges to the major river and coastal waters of Massachusetts." These were the deplorable conditions of water quality in the State in the mid-1960s. Those conditions were a much too common occurrence; unfortunately, those problems existed in the Commonwealth for decades as stated in the State Board of Health Report in 1900, "Discharge of Sewage from Boston Harbor", which indicted that "...the average quantity of sewage flowing from the outlet (Deer Island) amounted to 42,000,000 gallons per day." Sadly, the environmental attitude at the time was "It is not possible to secure an equally complete and satisfactory disposal of this sewage in any other way, unless at greater expense, and no change in the method of disposing of this sewage seems necessary or desirable at the present time." This attitude prevailed for decades. In fact, even in the early 1960s, dilution was considered as an acceptable solution to water pollution problems.

The Stage Set for Change

The widespread environmental degradation which had developed over decades fortunately did not go completely ignored by scientists, legislators, and various concerned citizens. The early 1960s were the embryonic beginnings of the modern environmental movement in this country. Spurred on by Rachel Carson's historic book, Silent Spring, the attitude toward the environment and the recovery of water resources finally began to take a forward and positive approach. It should be noted that environmental protection and water pollution control were underway in moderate proportions from the late 1800s; however, the public and legislative commitment were not sufficient to stem the widespread disregard and resultant degradation of our waters. Wastewater treatment plants (mostly primary treatment systems and some trickling filter plants) had been built by some communities in the state as a result of enforcement public health laws. However, there were no financial incentives for communities to undertake aggressive water pollution programs. Polluted waters were in a way accepted; the attitude was to pursue a non-use of the resource due to its unsafe conditions.

A New Beginning

The Massachusetts Division of Water Pollution Control was established by the Massachusetts Legislature through the passage of the Massachusetts Clean Water Act, Chapter 21 of the General Law as amended by Chapter 685 of the Acts of 1966. The impetus for the establishment of the Division came from enlightened awareness of legislators and the general public of the terrible conditions of the waters of the Commonwealth. In addition, the State was paralleling federal legilsation which mandated the establishment of a nationwide water pollution abatement program (the 1964 Federal Water Pollution Control Act).

The Program's Focus

The establishment of the Division developed a framework for the development of an aggressive abatement program and provided $250 million for water pollution control facilities. This financial "shot in the arm" thrust the environmental attitude of the State from a passive to an active program. In addition, the Division was provided with a comprehensive regulatory and legal framework which would push forward water pollution abatement projects and allow for enforcement action to be taken against recalcitrant parties. Along with these aspects, the Division was to conduct a State supported research and demonstration program on improved, more efficient methods of pollution abatement; adopt and enforce standards of water quality on all applicable waters; examine periodically the water quality of all waters and publish the results; develop and implement comprehensive plans statewide for abating and preventing pollution; train personnel engaged in pollution prevention and abatement; monitor the progress and operation of pollution abatement facilities for compliance; protect waters from oil spillage.

New Responsibilities

The monitoring of waters of the State began in earnest at the onset of the Division and has continued and expanded over the past two decades At the beginning of the program, it was very easy to find polluted waters; such discoveries were upsetting to members of the new Division. One Division engineer, youthful and eager, expressed his amazement and shock at the conditions he found in monitoring the Millers River, located in western Massachusetts: "The dissolved oxygen was zero, the river had a terrible hydrogen sulfide smell from the anaerobic conditions of the stream; I could not believe that such conditions could exist (or be allowed to exist) in a 'modern' society."

The improvements in the quality of the waters of the Commonwealth have incrementally and steadily increased over the past two decades. This improvement has not been easy or without setback, and has been extremely costly.

Building a Future

In 1972, Congress enacted amendment to the Federal Water Pollution Control Act of 1966 which set a goal for the nation's waters to be fishable/swimmable by 1983. In order to do this, the amendments provided for a strong federal role in the construction of publicly owned wastwater treatment works. The 1972 Amendments, commonly referred to as the Clean Water Act, increased the level of federal aid, and expanded the federal grant share to 75 percent in an effort to quicken the pace of wasteater treatment facility construction, and to eliminate a backlog of needed facilities. When those funds were coupled with State grants, the combined assistance represented 90% aid for eligible project costs.

Due to the sheer number of worthy and necessary pollution abatement projects, it became necessary for the Division to evaluate the federal and state dollar level or participation. Clearly, the data indicated that if the Commonwealth's commitment to clean water was to continue at a reasonable pace, more projects at a high dollar cost would have to be undertaken.

Through this program, the Division's Construction Grants Section has administered over $2 billion to communities for the design and construction of more than 600 critically needed water pollution abatement facilities. Additionally, $35 million in State aid for preliminary and final design grants (90%) have been made. These planning grants are most important for they allow communities to maintain progress in the planning of their clean-up projects. This planning is ineligible for Federal funds. Also, a State sewer collection systems grant progam, begun in 1980, has awarded 153 grants, consisting of $121 million in grant assistance to communities for projects not eligible under the Federal program. More recently, an Infiltration/Inflow Reduction Program was enacted, providing $100 million to cities and towns for rehabilitation of sewer lines. Additionally, a State only grant program began in 1985 which earmarks $80 million over four years for 70% grants to municipalities for important water pollution abatement projects.

Evaluation of Progress to Date

How well has this program contributed to water quality improvements? First and most important, the gross contamination virtually has been eliminated, and the vitality and uses of the rivers, lakes and estuaries of the Commonwealth have improved substantially. The Division has evaluated water quality conditions on a biennial basis since 1977. The current management plan subdivides the Commonwealth into 27 river basins, with a total of 2900 river/stream miles, and over 2000 miles of coastline. The first report indicated that only 16% of the waters of the State supported the designated uses dictated by the Division's water quality standards. The 1986 report indicated that 52% of the waters fully supported the uses (mostly restricted by stormwater and combined sewer overflows). This has allowed swimming and fishing in areas where these designated uses were thought to be lost forever, but are now a reality.

An Example of Progress

An example of the improvements in water quality can be illustrated with a brief discussion of the saga of the Hoosic River, located in the northwestern corner of the State. Municipal sewage, process wastewaters from such industries as tanneries, electronics manufacturers, and cloth producers spewed into the Hoosic River for decades until the late 1970s. Construction and upgrading of wastewater treatment plants and the elimination of the untreated industrial discharges have changed the Hoosic River from an open free-flowing sewer, to a river which is capable of supporting a native and stocked trout population. The improvements have been dramatic; the suspended solids loading to the river has been reduced from 15,000 pounds per day in 1973 to 300 pounds per day in 1985, a reduction of 98% over the 12 year period. As impressive as these figures are and as vital as the Hoosic River has become, the improvements necessary for the Hoosic River and the other systems in Massachusetts to be completely recovered are not completed, and there are several areas which need attention, abatement, and financial support in order to fully achieve and maintain fishable/swimmable waters throughout Massachuetts.

The Program's Mature Phase

In 1966, concurrent with the development of water quality standards and classification, the Division developed a plan to implement and enforce regulations designed to achieve water quality standards. The Regulatory Enforcement efforts were begun, with early emphasis in controlling industrial sources of pollution, since this category was identified as having the major adverse impact on the Commonwealth's waters.

In 1972 amendments to the Federal Water Pollution Control Act established a national dischage permit program to control point discharges into waters of the United States. The Program, called the National Pollutant Discharge Elimination Systems (NPDES), was administered by the Environmental Protection Agency (EPA). On January 10, 1972, EPA granted interim authority to the Division to issue NPDES permits. The first group of surface dischage permits was to 13 marine oil terminals that had oil contaminated stormwater discharges. In March, 1973, the Division's interim permitting authority expired and was replaced by an agreement between EPA Region I and the Division to issue industrial and municipal permits jointly.

Since the inception of the joint permit issuance program, over 1300 permits have been issued or reissued by the Division and EPA. This includes permits for all major municipal and industrial dischargers in the Commonwealth. During the period from July 1, 1986 through June 30, 1987, 109 NPDES permits were issued or reissued. In addition, more stringent treatment requirements have become the new program goal, along with an increased emphasis on the control of toxic and hazardous pollutants. As a result, a new round of permit reissuance is underway as well as continuation of initial issuance of industrial permits, usually non-contract cooling water discharges.

In 1983, an application was submitted to EPA for Massachusetts to assume full responsibility of the NPDES Program. Prerequisite requirements for delegation of NPDES responsibility produced increased program efforts in developing regulations to establish permit procedures, surface and groundwater discharge permit programs, groundwater quality standards, and requirements for hazardous waste management facilities.

Promulgation of these regulations, coupled with more stringent treatment requirements, resulted in increased activities ancillary to effective permitting, such as: (1) greater capabilities in providing wastewater treatment plant operation and maintenance and technical assistance; (2) operator training and certification; (3) backup compliance and enforcement activities; and (4) sewer line extension and connection permitting.

A further extension of the overall regulatory process was the development of a groundwater protection program, which has included development of a groundwater classification program and a permitting program for subsurface pollutant discharges. Groundwater management activities further extended to permitting existing septage facilities, inventory/assessment of underground injection wells, and coordination of Title 5 (subsurface disposal of sewage) policies and practices.

Toward Tomorrow

Problems which remain are varied and involve, in many cases, the "refinement" of existing projects and programs which the Division has undertaken over the past two decades. Among these issues, and at the top of the environmental agenda for water pollution control, is the abatement of the serious pollution problems of Boston Harbor. Projects will include upgraded treatment facilities (for 40% of the citizens of the Commonwealth), reduction of combined sewer overflows to the Harbor, residual solids control, and reduction of the contaminant input and bioaccumulation of the indigenous fish and shellfish populations. This program will take approximately 15 years and cost in excess of 3 billion dollars. As previously mentioned, combined sewer overflows continue to be a significant problem and one which will be very expensive to accomplish clean-up.

In the longer term, the Commonwealth must proceed with the design and implementation of a financing mechanism for the construction of publicly-owned wastewater treatment plants and related projects to promote the achievement of the Commonwealth's water quality objectives. Pursuant to the Federal Water Quality Act of 1987, federal grant assistance for this purpose is ending. Federal assistance in the form of state grants to capitalize state revolving funds will be available in annually decreasing amounts through fiscal 1994. Thereafter, no federal assistance is authorized. In planning to meet the Commonwealth's water quality objectives, it will be necessary to provide a mechanism which will assist local entities to meet the financing needs of publicly-owned wastewater treatment facilities and related projects. This includes, but is not limited to, facilities to be constructed to abate pollution of Boston Harbor Region, which will effectuate protection of groundwater resources, ocean sanctuaries, correction of combined sewer overflows, municipal compliance, and other very sensitive environmental problems.

With the success in control of conventional pollutants, the problems due to the use of toxic chemicals has created a need to control toxic pollutant inputs into waters of the Commonwealth. The "sins of the past" rear their ugly heads in the accumulated pollutants which are trapped in sediments in rivers and harbors of the State. The contamination of fish and shellfish is a much too common occurrance which will be a monumental task to overcome. One major example of a problem involving a toxic chemical is PCB contamination of the Acushnet River Estuary. After the discovery of the problem, the Division initiated the first studies on quantifying the problem and assessing possible remedial actions. The New Bedford site is now the subject of a major Superfund effort.

The improvements in water quality have been significant during the "life" of the Division. The task is not completed and will require continuing efforts; many of the issues are extremely complicated; final solutions will be scientifically difficult and financially demanding. However, the Division's past successes have laid a firm foundation upon which to build the solutions for the future. The future is now and progress must continue, for if the waters are not fully restored and protected, the future vitality and quality of life for future generations in Massachusetts will be in jeopardy.

Our Success Story, 1966-1988

°°° Significant visual and scientifically demonstratable water quality improvement on 70% (1227 miles) of the 1754 major stream/river miles in the Commonwealth.

°°° Over $2 billion in grants to communities for the design and construction of over 600 vitally needed water pollution abatement facilities.

°°° Over $121 million in State grant assistance to communities for over 150 sewer-line collection system and economic benefit projects. Passage of legislation in 1985 to double the total annual amount of State assistance.

°°° Initiation of $100 million program in State grants to communities for elimination of Inflow/Infiltration problems in sewer lines, of which $12 million has been committed to date.

°°° Facilitating State passage of Chapter 786, consisting of over $400 million in supporting bond funds for wastewater abatement projects, to continue beyond the expiration of the federal construction program.

°°° Startup in 1985 of a State-only 70% grant program involving $80 million over 4 years for important pollution abatement projects.

- Emergency response to and cleanup of 5620 oil and/or hazardous waste spills, costing over $25 million in private sector funds, and over $2 million in State funds.

- 1979-82 management of Ch. 798, Acts of 1979, Capital Outlay Fund for cleanup of abandoned hazardous waste sites. $2.7 million spent on cleanup of sites in Kingston, Dartmouth, and Lowell.

- Administration of over 144 research and demonstration projects totaling over $13.6 million expenditure, significantly contributing to new, improved, and more efficient methods of pollution abatement.

- Development of an effective statewide wastewater treatment plant technical assistance, operation and maintenance, operator training and certification, and permit compliance regulatory program.

- Water quality management plans for the 27 river basins that comprise the entire Commonwealth.

- Aggressive regulatory-enforcement program covering over 1,100 industrial and municipal NPDES permits for point-source dischargers to Commonwealth waters.

- An effective groundwater management and control program, with the issuance of over 250 groundwater discharge permits.

- Over $15 million in state grants to communities for Clean Lakes Restoration and Preservation projects, resulting in the enhancements of Water Quality and Preservation projects, resulting in the enhancement of water quality in over 50 lakes in the Commonwealth.

- Statewide monitoring system for water toxics, and toxics control programs via inclusion of appropriate toxics limits in over 75 NPDES permits.

- Increased emphasis on marine resources through a Coastal-Estuarine Water Quality Management Programs

- Development of a computer based wastewater treatment plant simulation for operator training.

Our Future

- Successful efforts at improving the water quality of the remaining 30% (527 miles) of stream/river miles currently in degraded condition.

- Continued administration, through 1995, over $3 billion in total pollutant abatement construction projects in communities statewide, including wastewater treatment, collection systems, Inflow/Infiltration, and lake grants.

- Conversion of Pollution Abatment Construction Program from Federal support to State and local support. Develop and institute financial mechanisms to generate the necessary State/local financial support for these projects.

°°° To change program emphasis, including construction, from inland waters to coastal-esuarine water quality management.

°°° Actively participate in the total Boston Harbor cleanup effort, including over $3 billion in monies through 1996, to be spent on the expansion and upgrading of wastewater treatment facilities on Deer Island, as well as control of CSOs and management of residuals.

°°° Orient the water quality standards and management planning efforts to toxics control and groundwater discharge control. Emphasize control through the Permitting Program.

°°° Wastewater treatment plant operation and maintenance, technical assistance, and operator training oriented to permit compliance through development of a computer based reporting and assistance network statewide.

°°° Conduct a Non-Point Source Pollution Abatement Study for the Commonwealth. Develop an NPS management control and implementation plan.

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